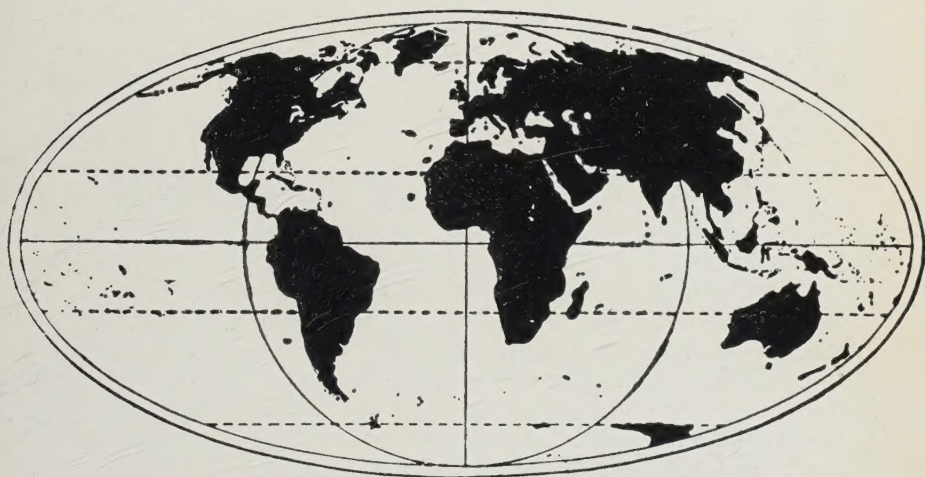


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THE TEACHING OF GEOGRAPHY IN NORWEGIAN GRAMMAR SCHOOLS

JOAN M. CLEGG*

GEOGRAPHY is the "Cinderella" subject in the Norwegian *gymnas*, or grammar school, chiefly owing to past neglect. This conclusion is the result of a recent investigation in Oslo schools and it has been confirmed by competent authorities in Norway.

To understand this situation it is first necessary to understand the Norwegian school system. All children must attend one of the state primary schools (*Folkeskole*) for seven years (7-14 years). Here geography is taught as part of the standard syllabus. At the end of this compulsory seven year attendance education may finish, but in Oslo and Bergen approximately half of the pupils proceed to one of the state secondary schools and most of the others attend continuation schools.

The secondary schools are of three main types, rather similar to our three branches in England, i.e., the *Realskole* (Secondary Modern) providing a three year course (14-17 years), schools for vocational training from 15 years onwards (Secondary Technical and others) and the *gymnas*. The five year *gymnas* is most common in the large towns; the pupils are from 14-19 years and the course leads directly to university entrance, so these schools correspond approximately to our Secondary Grammar schools. The teaching of geography in the five year *gymnas* forms the subject of this enquiry.¹

Geography is taught for the first three years—often the first two classes are combined with the first two classes of the *Realskole*, with no division on a basis of ability. Though this may be a handicap for both teacher and pupils, it is unavoidable in the thinly populated districts, but even in Oslo some schools have four or five "streams" in each year, which are still unclassified. The Norwegian belief in complete equality does not permit any division, either on a social or on an intelligence basis.

The syllabus for the three-year course is decided by the Ministry for Church and Education so that it is possible to check the work done by any particular age group in any district of Norway. This has the advantage of controlling the standard of work but the disadvantage of limiting the scope of the individual teacher. The curriculum is based on two lessons a week during the first two years and three lessons a week in the third year. There is also one lesson a week for mathematical geography in the fifth year for pupils taking the special science course.

* Miss Clegg, who is now a research assistant in the Agricultural Land Service of the Ministry of Agriculture and Fisheries, studied methods of teaching while visiting Norway for the study of agricultural geography and the fishing industry.

¹ During the school year 1949-50 there were 30,092 pupils in the Norwegian grammar and secondary modern schools (*gymnas* and *realskole*). Of these 8,464 pupils or 28.1 per cent. were attending schools in Oslo.

There is nothing corresponding to our sixth form course, so that there is a considerable break between the school geography course and university studies.²

The geography curriculum is framed by an advisory council to the Ministry of Education (*Undervisnings Rådet*). The duties of this council are wide; the members inspect schools twice a year, discussing educational problems and advising teachers. It is an advantage that the council members are thus directly in contact with teachers throughout the country. One of the practising teachers in an Oslo grammar school sits on this committee, advising for three subjects, mathematics, biology and geography. He is mainly responsible for framing the geography curriculum, following the traditions of the subject and advice from the teaching organisations. Any deviation from the traditions would undoubtedly stimulate great discussion.

In Norway, all text books written for use in schools are submitted to a central authority, a section of the Ministry of Education. The books submitted are carefully examined by a committee and have to be approved for use in schools. This undoubtedly has the effect of raising the standard of the text books. Only three publications are sanctioned for geography teaching in the Norwegian *gymnas*. Each is divided into two volumes, the first for use in the first two classes, and the second for the third class. The plan used in all three books is similar and reflects closely the syllabus laid down by the central authority.³

The syllabus in use since 1935 states that the aim of teaching geography in the *gymnas* is to give the pupils:

- (a) A general survey of the world as a human habitat based on the understanding of the inter-relation of different geographical factors in nature, culture, etc.
- (b) A more thorough knowledge of the topography, nature and economy of Norway, including map reading.

There is also

- (c) Mathematical geography, and astronomy, for science pupils in the fifth year.⁴

The curriculum states that in the two lower classes the pupils should broaden their knowledge of general geography, especially with

²University studies in Norway differ greatly from those in England. Each student reads only one subject at a time, usually taking 1-2 years to prepare himself for the *bifag* (subsidiary) examination. Three subjects are usually required to pass the first degree examination and therefore the average length of an arts or science degree course is six years. Thus it often happens that a student begins to read geography at the age of 23 having finished the elementary school geography course at the age of 16.

³Authors: Ellefsen, Schibsted and Sømme; Haffner and Knudsen; Orheim and Refsdal.

⁴The Advisory Council suggest that this section of the work should be taken over by the mathematics or physics teacher, because it is unfortunate that the teacher should have only one period a week with a class and also because the limited time available could be used more effectively by the mathematics or physics teacher, who could introduce relevant practical work and observations before the fifth year.

regard to the various climatic zones, land regions and oceans of the world, and of Europe (excluding Norway) *to the extent given by one of the authorised text books*. In addition to the topography, stress should be laid on economic and human geography. Mathematical geography, weather conditions and general geology should be included only in so far as they are necessary to the understanding of the inter-relations between geographical factors. The division of the work between the two classes will, as a rule, be suggested by the text book which is used. But the individual teacher should have considerable freedom in planning to utilise the time available for his subject.

The curriculum for the third year is also stated and again the authorised text book chosen is used as a basis for all studies. The actual methods of teaching, i.e., of imparting this knowledge, are theoretically free, but in actual fact they scarcely vary. Previously there has been no written examination in geography, but only the possibility of an oral examination; this may have influenced teaching methods as a censor (external examiner) is always present to ensure that the examination is conducted along traditional lines. It is now permissible for schools to set their own written tests in geography if they wish to do so.

A new syllabus is being prepared which in substance is very similar to the 1935 syllabus described above, which is still in use. It does, however, emphasise the need for more activity in the classroom, and it suggests that the class should carry out one or two individual or group projects, e.g., a local study or a special study of one geographical factor throughout Norway or in the Scandinavian countries as a whole. The new syllabus makes map reading compulsory and explains exactly what symbols and features the pupils will be expected to recognise and the type of simple exercise which should be carried out. It suggests that the "home sheet" should be studied first and that large scale maps of different types of scenery should be studied afterwards. Again the most suitable text books on map-reading are named, and *Norge i Kart* by Tore Sund and Axel Sømme,⁵ a collection of 19 topographical maps, with accompanying photographs and diagrams, and an analysis of each map sheet, is highly recommended.

Since a great deal depends on the text books in the Norwegian *gymnas*, it is very fortunate that they are carefully selected. The two most used in schools are very well-illustrated with well-chosen and clearly reproduced pictures and diagrams and with simple text in large print. The aim of that written by Ellefsen-Schibsted-Sømme is to present only the most important material and thus to give each individual teacher plenty of scope in using the matter and in providing local examples to illustrate geographical principles. Book 1 for use in the first two classes deals summarily with all continents. Book 2 for use in lessons on Norway in the third year deals with the elements of physical geography in the first section which occupies nearly one-third of the volume. (The principles of mountain building, erosion, types of

⁵ English Edition *Norway in Maps* reviewed in *Geography*, vol. 33, 1948, p. 95.

rock, geological periods, the oceans and climate are all included with many Norwegian examples). The following sections deal briefly with Norwegian vegetation and animal life ; subsequent chapters summarise clearly the main points regarding economy. (Agriculture, forestry, fisheries, sealing and whaling, mining, industry, shipping, trade and communications). The remaining third of the book is devoted to the regional geography of Norway and includes three clearly reproduced examples of topographical maps.⁶ A concise section on mathematical geography forms the conclusion of the book.

On the whole it appears that the text books are very much more modern than the method of using them. Most teachers take the contents of two or three pages in each geography lesson. They repeat the facts, perhaps with reference to the good maps in the standard school atlas and to the useful statistical tables which are specially selected for work in conjunction with the corresponding text book. Unfortunately in many cases there is too little enlargement on the subject matter provided by the book and often insufficient detailed explanation or illustration by particular examples.

In the most common method of teaching observed the first fifteen or twenty minutes were spent on a rapid résumé of all the facts learned in the last lesson, by means of oral questions and answers, followed by an equally quick treatment of the new work to be learned ready for the next lesson. This method may be extremely interesting or utterly boring, according to the capabilities and interests of the teacher. A usual variation allows the pupils to draw graphs or diagrams on given frames, or to fill in certain information on outline maps, all provided in the printed exercise books. In one third year class excellent use was made of the large scale topographic maps of Norway (1 : 100,000) but this is not yet general in all schools.

Sets of large geographical pictures are not available ; this is understandable when one considers the very limited sales demand in a country of only 3·2 million inhabitants. Specimens, film strips and films are very seldom used to illustrate lessons. The use of "visual aids" has certainly not yet found a place in Norwegian geography teaching, even though a film projector, films and an operator may easily be obtained from a central film office in Oslo if ordered one week ahead. Foreign films and film strips could easily be used in the *gymnas* because the teaching of modern languages is particularly sound in these schools and achieves remarkable results. This was illustrated by a lesson on Finnmark in a third year class, conducted entirely in English. All descriptions were given in fluent everyday English, all questions were asked and all the 15-16 year old pupils replied easily in our language. The class was thoroughly at ease and obviously enjoying itself.

It is necessary to mention a book which is being prepared for the use of teachers in Oslo and the surrounding district. This is an

⁶ Two of which illustrate Professor Sømme's article in the September number of *Geography*, pp. 151 and 153.—ED.

"excursion" book and will contain sections on geography, history, botany, zoology, archaeology, etc., each written by a specialist. Teachers of geography will be provided with exact information and full details for five excursions in the Oslo area; one to the harbour, one to a lake and its issuing stream, and the others to the best local view points. It is hoped that this will encourage and help the habit of outdoor investigation, which is already compulsory for school teaching of botany and zoology.

It is surprising that although teachers may apply for permission to substitute their own syllabus in place of that laid down by the central authority, no geography teacher in Norway has ever done so. The teachers seem more conservative than the regulations. Very few schools have geography rooms or much equipment, except good sets of Norwegian wall maps and globes. Even though many teachers may teach geography in the same school there is never a "senior" teacher responsible for the subject throughout the school; this may be one of the difficulties in improving the status of geography teaching in Norway.

The classes in the *gymnas* are smaller than in English grammar schools; there are seldom more than twenty-five pupils and often fewer. This would be a great advantage to Norwegian teachers in coping with practical and group work. Most of the classrooms in Oslo are large, airy and tastefully decorated. There is usually plenty of space between the rows of desks and all round the room—conditions to be envied by English geography teachers.

A characteristic of Norwegian school organisation is the ten or fifteen minute break between each forty-five minute lesson. This interval gives time for the classrooms to be completely cleared and for proper ventilation; it enables the children to enjoy recreation in the playground and the teachers to relax in the well-appointed staff-room. Such an interval would be a great boon to the English geography teacher, allowing him time to collect all the equipment necessary for the following lesson and yet permitting him to begin each lesson punctually. This is quite impossible in schools where no pause is granted between the end of one lesson and the beginning of the next. The maximum number of lessons taught by a qualified teacher in the Norwegian *gymnas* is twenty-four in the six day week (Monday–Saturday).

Gymnas teachers (*lektors*) are trained in The Institute of Education (*Det Pedagogiske Seminar*). They must first have completed a degree course at the University. It takes from 5–7 years to become qualified with two or three *bifag* or subsidiary subjects and with one *hovedfag*, for example, in geography. The latter is the nearest equivalent to our honours degree standard and it entails a piece of original research work. At present the teachers' training takes one semester (five months), but this course will soon be altered. During the first six weeks the students attend courses in the principles of education, history of education, psychology, health, education, etc., given by the two full-time lecturers and by specialists. Short courses of about ten lectures are given by

practising teachers on the methods of teaching different subjects. About eighteen lectures are given in "geography method," ten being considered inadequate by the lecturer. The students must attend three "method" courses in the subjects they have read at the University. There is no geography tutor able to devote all his time to visiting students and to supervising the type of lessons given. Thus the training of prospective teachers devolves on the permanent teachers in the high schools. The students must give one hundred lessons before they may sit for the examination at the end of the training course. One of the two tutors from *Det Pedagogiske Seminar* (neither is a geography specialist) visits the students two or three times, and consults with the school teachers of the three different subjects being offered for the examination, to discuss and decide on the grade given for practical ability at the end of the course.

This system limits the amount of specialisation possible. Nowhere in Norway is there a teacher devoting all his time to the teaching of geography, not even the one who lectures on the method of teaching this subject. The advantages of each teacher taking several subjects are that he is better acquainted with his pupils and more easily able to correlate subjects. After many discussions with students, teachers and lecturers in Norway, it is obvious that this lack of specialisation is not generally felt to be a handicap; the usual comment is that a teacher could not possibly give twenty-four lessons a week in one subject, he would be bored to death! Is this a reflection on the Norwegian teaching methods or should we enquire more closely into the attitude in our own grammar schools?

In England we are tending more and more to make the bitter pill of fact learning more palatable by increasing the amount of "popular interest" provided in our geography lessons. The interest of the pupils is stimulated by the use of pictures, specimens, films, film strips, newspaper-cuttings, letters from abroad and the like. These devices are particularly useful for ensuring that the pill is swallowed, but the teacher must be even more careful to see that the pill is digested and that the essential facts are really understood and learned. The Norwegian teachers, on the other hand, seem to take much less trouble to make the pill appetising, the children are presented with facts in a text book, which are reiterated by the teacher and these facts must be learned by heart. Most English children forget many of the detailed facts, but our hope is that they remember the general principles and have correct impressions of life in other countries. Perhaps Norwegian children also forget facts but is it sure that they have obtained a vivid impression of foreign life from their school geography lessons? Since many Norwegians eventually travel abroad, this may not be so enduring a loss.

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AXEL SÖMME

TO what extent can Norwegian agriculture feed Norway's 3 million population?

Sweden stretches through a similar number of degrees of latitude to Norway, but begins some degrees further south and is self-sufficient in food. Little Denmark can feed four times its own population. There is no official estimate of Norway's self-sufficiency in food.

At the outbreak of the late war the imported food fell into three groups, each constituting 10 per cent. of our food consumption, namely flour for bread, sugar, and raw materials for margarine. We then ate four times as much margarine as butter. To this 30 per cent. we must add about 5 per cent. for the imported fodder consumed by our livestock. My final estimate of our degree of self-sufficiency in food in normal years puts it at two-thirds.

If you separate crops and animal produce, you may describe the situation in this way. We produce about half the quantity of grain used either for human consumption or as fodder; our potato crop is twice what we need for human consumption; we are deficient in vegetables and fruit, and self-sufficient in milk, meat and eggs, thanks to import of both protein and other fodder, particularly maize. It was estimated in 1939 that 16 per cent. of the fodder consumed by our husbandry was either imported fodder or fodder produced in Norway from imported raw materials.

The figures quoted are for our food balance in calories. The consumption of protective foods, particularly vegetables, fruit and eggs, was low over large areas, whereas the consumption of animal protein was fairly high because of the great quantity of fish consumed. The standard of living of our fishermen was low, except in western Norway south of Kristiansund, as was that of our land and forest labourers and a great proportion of our peasants. Only the towns and the good agricultural regions had a standard of living comparable to that of Denmark and Sweden. Since the late war the diet of those marginal regions has, fortunately, improved considerably, due to the recent more even distribution of income.

Norway suffered from a severe food shortage during the late war, but if left alone, we are not so badly off as you may think. We can turn into arable land a part of our permanent pastures. We can cultivate more grain for human consumption, and less for fodder, and eat more potatoes and less bread.

* The second of two lectures given in London and some other British Universities in May, 1950, somewhat abbreviated. The first appeared in the September issue of *Geography*, pp. 141-154.

Whereas the conditions for agriculture worsen with increasing latitude, it seems that the abundance of salt water fish increases. Few, if any countries in the world are better situated for fishing. Only one-tenth of our total catch is normally used for human consumption in Norway. The rest is exported or processed. During an emergency we can reduce our meat consumption almost to nothing and eat more fish.

Our herring fisheries in home waters and particularly our whaling in the Antarctic give us a surplus of fats for export, equal in the late thirties to about one and a half times our own consumption. Our deficiency in fat during the late war was due to the cessation of our whaling in the Antarctic.

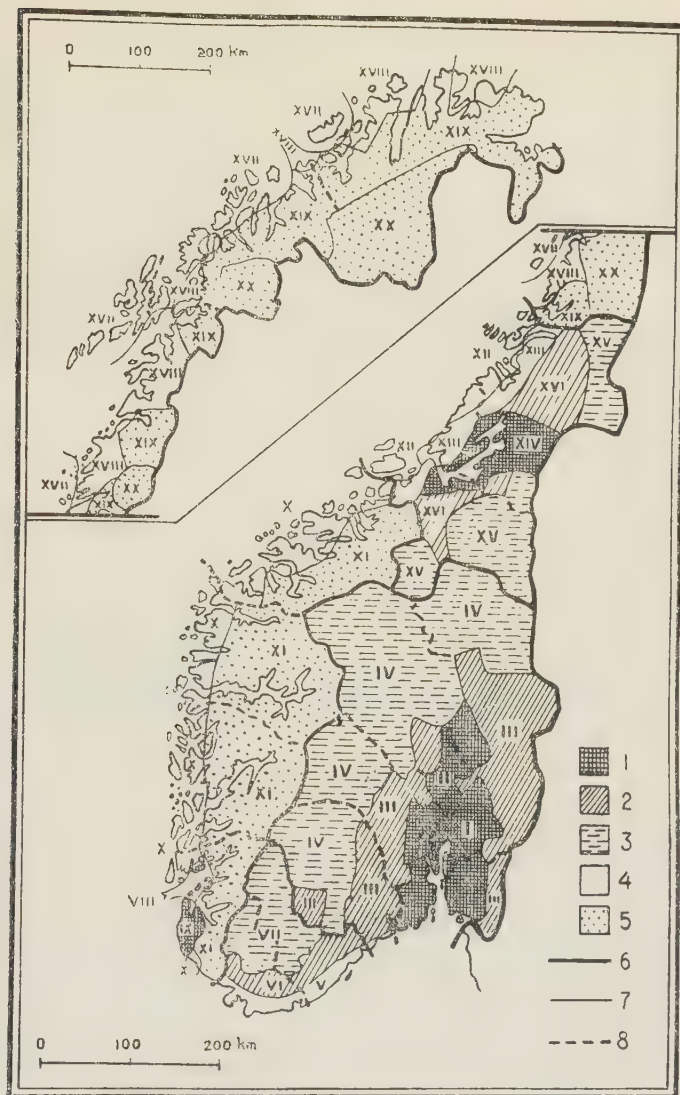
I have been speaking about our food supply in peace time and during the late war, when it was far better than during the first world war, thanks to a considerable increase in agricultural output in the period between the two wars, by far exceeding the population growth, estimated at 15 per cent.

The desire for an increased self-sufficiency in food in the event of a new war was the strongest agent behind this important extension of Norwegian agriculture. At present another argument may be frequently heard; Norway had, like Great Britain, a deficiency in its trade balance with the New World before the late war, but it was then balanced by our shipping income from the American continent. Now our dollar shortage is acute. As Canada and the Argentine are our main suppliers of grain both for human consumption and for fodder, and subsidies for grain production in Norway only amount to a modest sum, we hold that it should be a sound policy to produce more grain by increasing the prices paid to the farmers by our grain monopoly. In the period between the two wars our wheat production was quintupled, due to the higher price of home grown wheat and to the use of new strains better suited to our climate. The increased production of wheat was, however, to some extent offset by a lesser production of barley and oats, our total grain production increasing only by twenty-five per cent.

I have till now adopted the consumer's point of view. He wants enough food at a reasonable price, and is willing to pay a somewhat higher price for his food in normal years as an insurance against a serious shortage in case of war.

Agriculture, however, should also provide a livelihood to the rural population and, if possible, with a standard of living as high as that offered by other industries.

In Great Britain less than ten per cent. of the total population is engaged in agriculture, the figure for U.S.A. being twenty, and for Norway above thirty at the 1930 census. The census planned for 1940 was held in 1946, but the results relating to the distribution of occupations have not yet been published. The figure for agriculture is however believed to be now less than thirty per cent.



NORWEGIAN AGRICULTURE AND FOOD SUPPLY.

Fig. 1.—The 20 main agricultural regions of Norway. The numbers have reference as follows :—

- 1.—Good agricultural land.
- 2.—Intermediate or forest districts.
- 3.—Mountain valleys.
- 4.—Coast districts.
- 5.—Inner fjord districts.
- 6.—International boundary.
- 7.—Limits of the 20 main agricultural regions.
- 8.—Local administrative boundaries subdividing the 20 main agricultural regions into 55 smaller ones.

It is a peculiarity of Norway that the modern specialization has not yet reached the whole population. Of the persons living on farms, about one-third have agriculture as their sole occupation. Another third have agriculture as their main occupation, whereas the last third are primarily engaged in fishing, or some craft or trade. To these people agriculture is only an accessory occupation. They produce food for their own consumption and the sale, if any, of agricultural produce has no real importance for their incomes. As, however, fishing, mining and even forestry are subject to variations of output due to natural causes or business cycles, such small farms are much appreciated by people engaged in these trades. This third group is of course not included in the figure for the farming population just referred to, amounting to one-third of the gainfully-occupied population.

Whether these combined occupations are relics of the past and will disappear in a society of intense internal and external trade and full employment is a question open to discussion.

In western Norway the capital outlay per fisherman has now reached such a level that the new, expensive fishing vessels must be used all the year. Because of the mild winter climate the farmers can work on their fields for all but a few months, the mean frost-free season being, e.g., at the Jæren plain south of Stavanger, almost 300 days. Fishing cannot therefore in western Norway be combined with agriculture.

It is otherwise in northern Norway. The farmers can in any case do no out-door work during winter, when the great seasonal fisheries take place. Without neglecting their farms the adult males can join, first the Lofoten fisheries, and later even the big seasonal fisheries on the Finnmark coast in April and May.

An example will show how this works out in the far north. Except in Finnmark our fishing population lives mainly on farms. In Troms, for example, half the persons living on farms have agriculture only as a subsidiary occupation. Among the other half only one-third have it as their sole occupation. The great majority of those living on farms thus depend more or less on fishing for their cash income. In the above calculation I have excluded the outer and inner districts, the former being almost exclusively fishing districts, the latter having extensive pine forests, which occupy the local population in winter.

When considering our food supply I first adopted the economist's point of view. When speaking of our rural population I distinguished between those having agriculture as their sole or main occupation, and those having it only as an accessory occupation. I will now try to analyse our food supply as a geographer.

In a paper read at the International Geographical Congress last year I discussed to some extent the regional division used in our decennial agricultural censuses and shown in Fig. 1. Briefly I can state that I find the three-folded division of Eastern Norway into the good agricultural regions with fairly level land, the forest districts, and the

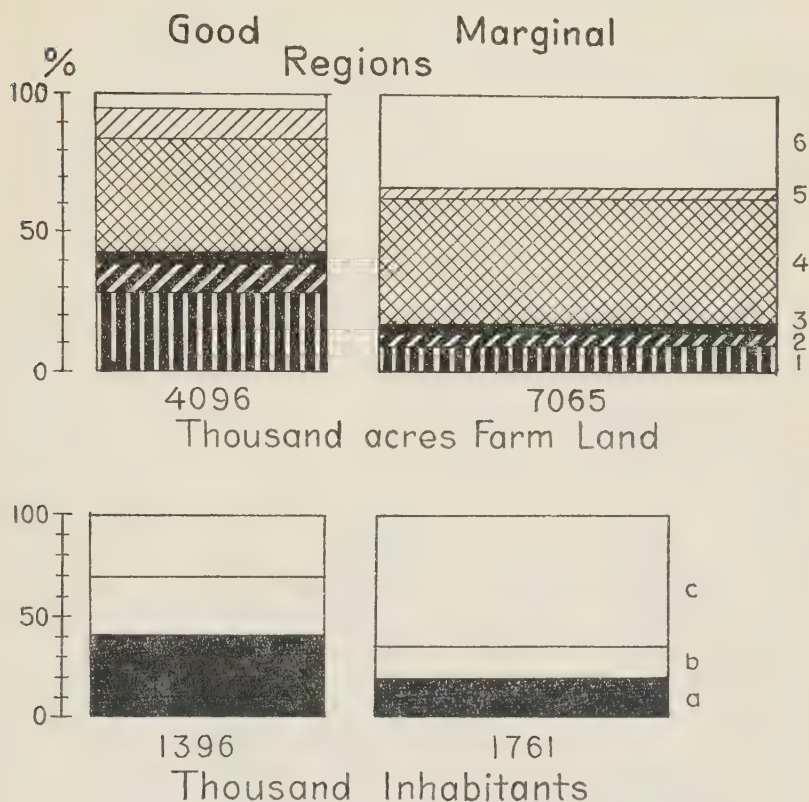


Fig. 2.—Farm land and population in the good agricultural regions (left) and in all other regions combined (right). In the upper diagram the numbers have reference as follows: (1) cereals and peas for ripening; (2) potatoes and roots; (3) other arable crops; (4) rotation grass for cutting; (5) improved permanent grassland and rotation grass for pasturing; (6) meadows for hay or grazing. In the lower diagram the population living in cities and administrative towns is denoted (a); that in non-administrative towns (b); and that on farms and other types of disseminated settlements (c).

mountain valleys rather satisfactory. Western Norway I would prefer to divide in three parts instead of two, all parallel to the coast. The division for Trøndelag is not quite satisfactory, and I disagree entirely with that used for Northern Norway. Here latitude, in contrast to Southern Norway, is more important than the distance from the sea, which has determined the division.

The areas which we consider to be our best agricultural regions have been cross-hatched on my map. These are found on former sea bottoms emerged in late- or post-glacial time round the Oslo and Trondheim fjords. In the interior we find them north of Oslo in small areas sunk between fault-lines having a bedrock of Cambro-Silurian shales and limestones. At the coast they are found on the Jæren plain south of



Fig. 3.—The dairies of southern Norway. The circles indicate the quantity of milk received by each dairy in 1939. For the larger cities the quantities brought directly from the farms by lorries are indicated in black, and the quantities gathered at collecting stations by hatching. The supply districts for Oslo, Bergen and Trondheim are indicated by black lines.

Stavanger, where a thin layer of morainic deposits from the last glaciation covers vast deposits from an earlier ice period.

Fig. 2 shows the farm land and population of all these good agricultural regions to the left, and the farm land and population of all other regions, which from the point of view of agriculture we may class as marginal, to the right. The land-use differs greatly. Note the oblique and acute angles for the three most intensive categories of land use (1-3). Note also the high proportions of low-yielding meadows (6) in the marginal regions and of high-yielding pastures (5) in the good agricultural regions. The latter occupy only 8 per cent. of Norway's total land surface, but had in 1939, 45 per cent. of our arable land and rotation grass, and almost 60 per cent. of the milk received by the dairies in spite of their having only one-third of our cows. Eighty-five per cent. of the grain sold is derived from these regions.

Our main concentration of towns happens to lie within or close to the extensive areas of good, level farm land round the Oslo fjord and north of it. The rich agricultural plains south of Stavanger and around the inner part of the Trondheim fjord have also to market their main surplus in the same urban cluster, as the towns of Stavanger and Trondheim are both too small for their rich agricultural hinterlands.

Fig. 3, which shows the dairies of Southern Norway, emphasizes the importance of these good agricultural regions. When looking at the loose network of dairies in the rest of the country, we must remember that vast high plateaux and mountains separate the eastern valleys and the western fjords. Some of the eastern valleys are indeed rather densely populated, for instance Gudbrandsdal.

The usual figures of population density have no application to the Norwegian countryside. When the ratio between the population living on farms and the area of the farm land is used, the density of the Gudbrandsdal by far exceeds that of the rich agricultural lowland regions. The more mechanized agriculture of the latter requires of course less labour. The use of mountain meadows both for hay and grazing increases the carrying capacity of the small farms of Gudbrandsdal.

A map of Northern Norway would show a still looser network of dairies. Their combined milk production constituted in 1939 only 5 per cent. of Norway's total dairy-weighted milk. Over vast areas there are no dairies on account of lack of roads and markets. The dairies of Northern Norway receive only 25 per cent. of the milk produced in that part of Norway, whereas the figure for our good agricultural regions amounts to 70 per cent. Almost all dairies are owned by the farmers. It is rather surprising that in a country like Norway, where the communication between the farms within a region and between the different regions of the country is so difficult, co-operation between the farmers can reach so high a degree.

Almost all Norwegian farms have their main cash income from the sale of milk; only large farms in our best agricultural regions can make a profit by selling grain. All other farms grow grain in order to increase



Fig. 4.—Rural districts in southern Norway having more than 30 per cent. in rotation grass—dotted.

the yield in grass the following years. The highest proportion of grain is found on both sides of Lake Mjøsa, where there are the best climatic and soil conditions for grain, and where, in addition, fairly level land and larger farms make the use of machinery profitable. Here, slightly above 35 per cent. of the arable land is in grain; in inner Hardanger the proportion is just 5 per cent. The steep slopes of the small farms here can be better used for fruit or rotation grass, the main crop in those regions, which I have classified as marginal in respect of agriculture (cf. Fig. 4).

I have emphasized the importance of the lowland areas, producing the bulk of the marketed farm output. What about the remaining 92 per cent. of Norway, which has more than half our arable land, and almost two-thirds of our cows?

Most of the cash income in these marginal regions derives from other activities than farming. The small farms are rather to be considered as homesteads, and the farm produce is mostly consumed by the owners.

There are, however, exceptions. Everywhere you may find good farms in places better favoured by soil or climate than is general in the district. Their small surplus for sale is mainly marketed in the region and is much appreciated there. Milk, vegetables, potatoes, and to some extent also meat, cannot be brought, in a country like Norway with its enormous distances and expensive transport, to all districts from the good agricultural regions which can produce the same crops at a much lower cost.

The dairy at Kirkenes in Finnmark gets only half the quantity of milk needed for this mining community from the valley south of it, the other half deriving from middle and southern Troms. The boat journey takes two days. We try to increase the local milk production in the valley south of Kirkenes in order to improve the quality of milk in summer and to guarantee milk to children and invalids when stormy weather interrupts the boat service in winter. The cost of local milk must of course be high. In most years the yield in hay on a good farm equals that obtained by the first cut in south-eastern Norway. But Finnmark has no aftermath, and the grazing season is extremely short. To get enough winter fodder hay has to be imported from Trøndelag, five and a half days by steamer.

Finnmark of course represents an extreme case, but other marginal regions are similarly circumstanced. Western Norway has great industrial potentialities; big and varied chemical and metallurgical industries will in future use its abundant and cheap water power. As the yield of spruce plantations proves to be definitely higher on the steep slopes of rainy western Norway than that of the natural spruce forests of the drier eastern Norway, big wood-processing industries will also arise. In a region having an extreme scarcity of soil the new industrial population will need important quantities of liquid milk, vegetables, and other crops which cannot easily be brought from other regions. Under such conditions it will be profitable to cultivate land which no farmer elsewhere will consider cultivating.

When adding all the small quantities marketed from these marginal areas you will find that these regions are also important to our food supply of butter and cheese. The dairies of these regions produced in 1939 almost the same quantity of butter and cheese as those of our good agricultural regions, concentrating on the sale of liquid milk. We have also some produce which is almost entirely derived from these marginal regions.

Fig. 5 shows the rural districts having more adult sheep or goats than cattle. The rearing of sheep is particularly concentrated in the south-west. The coastal areas have here ample opportunities for the production of winter fodder and for establishing permanent pastures for grazing in spring and autumn, and, at the same time, easy access to



Fig. 5.—Rural districts in southern Norway having more adult sheep or goats than cattle, irrespective of age—dotted; districts with twice as many adult sheep or goats as cattle—black.

vast, but distant, inland mountain pastures suited to summer pasturing of sheep. New motorable roads have reduced the cost of transport by lorry to these pastures.

In Great Britain the sheep graze the whole year. In Norway it is otherwise. Even in those south-western districts, which have our longest grazing season, the sheep are kept indoors for 3 months. For the inner fjord districts of western Norway the figure is 6 months, and for the eastern mountain valleys between 8 and 9 months, or only 2 or 3 weeks shorter than for cows. Here the peasant finds it more profitable to use his winter fodder on cattle than on sheep and goats.

Our typical goat districts are found round the heads of the fjords of western Norway in places where the farms face north and are thus unsuited for fruit growing. Some districts nearer to the coast have also specialized in goats. Their grazing season is much longer, but in most cases their summer pastures are not adequate and they bring their goats in summer by boat or lorry or by driving to distant mountain pastures.

The sheep run free and in most cases do not need any supervision. Goats need "seters" in the mountains as do cattle. A seter in most cases consists of a cottage, a cow shed, and a barn, and is used during two or three summer months. This kind of transhumance was formerly more widely spread than now. Fig. 6 shows its present importance and recent development.

Since 1939 the shortage of labour has hastened its decline in most districts, and we wonder if the increase registered for some regions during the period under review will continue. The old transhumance has been maintained in these regions because of geographical conditions which have made it possible to adapt it to modern life. The milk lorry ascends every evening, animating the social life of these rather lonely seters, and descends to the dairy in the main valley early in the morning, thus reducing the labour required on the seter.

The old transhumance is declining, and many isolated hill farms have been abandoned. Can new cultivation compensate this shrinkage of our farm land?

In our good agricultural regions there is not much land left which can still be cultivated, but vast areas of cultivable land are found in the marginal regions at higher altitudes or latitudes. Considering the actual shortage of labour and its cost I do not think that this land will be cultivated in the near future. The principal aims of Norwegian agriculture will therefore not be to increase our arable land. By increasing the home price for wheat we hope to increase our grain production, but not to any considerable extent. Our main aim is rather to feed our livestock population on Norwegian fodder. We are self-sufficient in animal produce, except in wool, but had, before the late war, to import sixteen per cent. of the fodder consumed by our livestock. The proportion is now only eight per cent. We hope to maintain or even to improve this favourable percentage by using more



Fig. 6.—Present importance and recent development of transhumance of milk cows in southern Norway. Numbers have reference as follows: (1) Decrease in the number of cows on seter between 1907 and 1938, each symbol indicating 100 cows; (2) Increase in the number of cows on seter; (3) Limit of the area with rural districts having at least 45% of their cows on seter in 1938.

silo fodder and less hay, by adapting newer and better methods for drying hay, conserving its protein content better, and by extending the grazing period by two weeks both in spring and autumn. This can be done by using highly manured pastures instead of the old natural meadows, the grasses of which come up later in spring and fade earlier in autumn.

Other countries have better soil and climate for grain. As precipitation during the growing season is fairly adequate, our yields are rather high, equalling those of Denmark, except for wheat and mangolds, which both require a warmer summer than even southern Norway can offer in most years. We produce, however, our arable crops at higher costs than do most other countries, as a consequence of the hilly character of the farms and the excess of rain during the harvest. We therefore have to subsidize almost all branches of agriculture. At present we quarrel whether we are subsidizing the farmers or the consumers; in normal conditions the answer will be quite clear.

Other countries produce their arable crops at lower cost than we do. On the other hand, permanent pastures yield in rainy western Norway as much or more than the arable land, the cost of the fodder grazed being actually only half that of hay and other arable crops. While Great Britain tries to reduce its area of permanent pastures by more ley farming, we hope to increase our production of milk and meat by extending our permanent pastures. They will, however, mainly be developed on land which has not been previously tilled.

We can, of course, still increase the yields both of our fields and our livestock. Our main aim in this respect is to shorten the long leys now practised in western and northern Norway. We hope that a government grant on grain and potatoes grown for home consumption on the small farms of our marginal regions will reduce their area in grass, but increase the total yield. Fewer cows of selected breeds and better fed than most cows now are will also increase our production of milk and meat. Our main problem is, however, to reduce the high costs of Norwegian agriculture, due to unfavourable natural conditions by the introduction of new techniques, new machinery which can work on our steep slopes, new methods of harvesting which can both make harvest easier and the quality of crops superior. New techniques adapted to our special natural conditions thus seem to be more important than more fields and new crops.

BRITISH GUIANA

II.—GEORGETOWN AND ITS TRADE*

G. LIGHTON

THE SITE OF GEORGETOWN : RELATION TO THE EMPOLDERED COAST

THE Demerara estuary is fairly central for the empoldered coast¹ between the Pomeroon and the Corentyne. The old Colony of Essequibo was already declining when Georgetown was founded towards the end of the 18th century, so there was little temptation to adopt the mouth of the Essequibo as the site, more particularly as the town was only the capital of the coast lands at a time when trade with the interior was negligible. The broad, island-studded estuary of the Essequibo has shallowed greatly. The narrow unobstructed Demerara is somewhat faster in flow. It runs normally at $2\frac{1}{2}$ knots, but at its mouth it moves at 7 knots with the ebb, and has maintained a channel normally giving a clearance of 16–20 feet over the bar. A pilot is necessary from about eleven miles out, but the riverside wharves are all within a mile of the coast and ships up to 8,000 tons lie alongside. The north-east corner of the river provides some shelter from the prevailing wind.

New Amsterdam, founded about the same time as Georgetown, was the capital of the Colony of Berbice, but ceased to rival Georgetown after the union of the three counties in 1831. There is a boat once a week from New Amsterdam, up the Berbice river to near the end of the Rupununi cattle trail, and a motor launch serves the Canje creek ; but continued neglect of the harbour of New Amsterdam has deprived it of the trans-ocean traffic which still visited it up to the end of the last century, and it has relapsed into a sleepy, mosquito-ridden township of 8,000 inhabitants. Georgetown has no other possible rival.

Georgetown came into existence just as sugar-cane was replacing cotton. It is built on the lines of the sugar estates, obtains its water from the same sources, supplies the estates with imported goods, ships their sugar, rum and molasses, houses their local offices and warehouses, and is their chief link with their London and Liverpool headquarters. The larger wholesale and retail firms in many classes of goods are owned by or associated with the estate-owning companies.

The extraordinary fertility of the coast soils encouraged settlers in the latter half of the eighteenth century to empolder the land to such

* The first section of Mr. Lighton's article entitled "Coastlands and Interior" appeared in the September issue of *Geography*, pp. 166–177.

¹The terms "East Coast" and "West Coast" are much used, and are confusing. They refer to coasts east or west of a named river. Thus, the "East Coast, Demerara" is the coast east of the Demerara River, up to the boundary of the old colony of Berbice, where the name becomes "West Coast, Berbice." The coasts all face more or less north, of course.

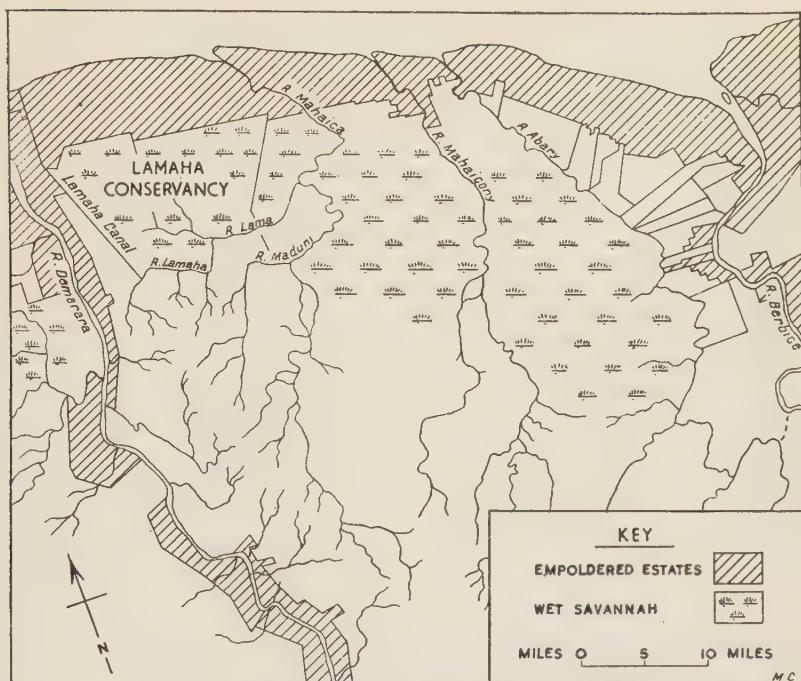


Fig. 1.—Drainage of the "East Coast," Demerara.

effect that immediately behind its modern sea defences it is four feet below high water mark at spring tides. Even now, there is a precautionary clear space² of a third of a mile between the sea-wall and the first line of houses in Georgetown, while the coast end of the estates is usually either abandoned to pasture or used as rice land.

As many as 2,000 estates have existed on this empoldered coast, and they were all laid out on much the same plan. Land was empoldered to a depth of three to six miles from the sea or river, and rectangular strips only 500–750 yards wide composed single estates (Fig. 2). Behind the estates lies unempoldered alluvium, reaching back to the sand belt, devoid of roads and population, flooded or marshy, and with an erratic but mainly coastward drainage (Fig. 1). The back-dam of each estate contains a sluice to admit water from this "wet savannah" as required in the dry seasons. From the same sources Georgetown is supplied with tap-water which was, until the inauguration of a clarifying system in 1948, stained a dark brown by the peaty vegetation. The long edges and central axis of each estate are marked by canals connecting the wet savannah with the sea. These are dammed with the excavated mud. Smaller cross-channels link the main ones, and all serve the triple purpose of drainage,

²The very recent silting up of the foreshore has so reduced the risk of an encroachment of the sea that this space is now being gradually occupied.

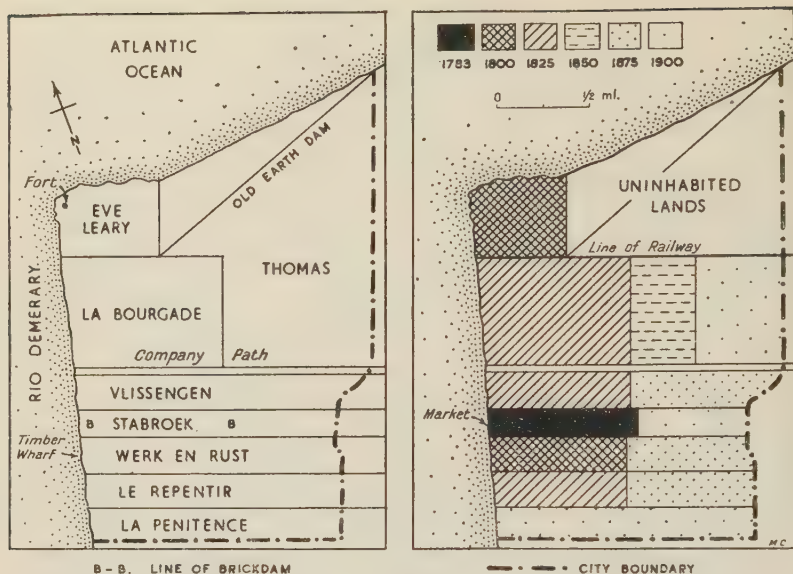


Fig. 2.

irrigation and transport. The front-dam gives access to the sea, and permits the passage of boats of a type peculiar to British Guiana, called sea-punts, which take sugar to Georgetown.

Georgetown lacks the extreme simplicity of this plan. It occupies the area of several former estates, and those at the corner of the coast and river were necessarily of less regular shape. Some of the principal drainage canals remain in their original position; others have been filled in on the score of sanitation and replaced by double lines of deep gutters, which require constant cleaning lest they become choked with mud. The flatness of the land and the necessity for sea defences does not allow a continuous flow of drainage, so the canals and gutters remain full after rain until the sluices can be opened as the tide ebbs. Except on the southern edge of the city, the canals are not now used for transport.

Like the roads on the estates, the city's roads border on the canals or have taken their places. The large number of cross-channels on estates has (with some exceptions) prevented the use of agricultural machinery—a serious matter for a competitive industry. In the town an average of from seven to ten cross-streets per half-mile similarly hinders traffic.

The wards of the city correspond exactly to former plantation boundaries or are large portions of estates sold to the city in rectangular blocks; any number of district and street names commemorate the old estates or their owners.

Before any town existed, the Dutch erected a signal station, the Brandwagt, about a mile from the sea at the river end of Plantation Stabroek, a name used for the whole town until 1812. During the

French occupation of 1782–83, the governor decided to found a town, and chose a line from the Brandwagt up Plantation Stabroek. A dam, surfaced with burnt earth and bricks, was made to hold a double line of houses about 1,200 yards long, with drainage canals at their backs. This is the modern road called Brickdam. A line behind a mud river dam, leading towards the sea, was reserved for government use. Those planters who wanted a capital needed a port, not a residential town, so in a few years buildings on piles spread along the river bank in front of the official buildings and the river dam. A strip of land about 100 yards deep was reclaimed from the river by this means, and the modern business centre, Water Street, came into existence.³ The market held on the site of the Brandwagt has been moved, in a direct line, to the new riverside to conform to this. The line of government buildings has become the modern Main Street, conserving a large number of official buildings and residences of the well-to-do, but almost devoid of shops or industry. Brickdam similarly has never had shops or industry, and is, on a smaller scale, the counterpart of Main Street.

These three nuclei became joined first to a group of dingy dwellings around the timber wharf, which danger of fire compelled to keep to leeward of the town; and later to the village around the fort at the river mouth. Thereafter, Georgetown spread mainly eastwards.

The principal disadvantages of the site of Georgetown relate to water. Water can be met anywhere by digging four feet deep, and underground pipes cannot be laid at any depth because they will not remain firm in what is virtually liquid mud. The efficient sewage system, hampered by this and the lack of natural slope, is a triumph of ingenuity, with a series of pumping stations to maintain the flow. The vast majority of buildings are raised on piles as protection from damp, and have to be made of wood since buildings made of stone may subside.⁴ Big buildings have to be founded on rafts sunk into the earth. Some of the few stone and brick buildings erected have not been very successful.

Excess of water becomes a nuisance when rainfall is so heavy that the drainage system cannot cope with it, as on a day in 1938 when over five inches of rain fell in three hours.

Deficiency of drinking water was until very recently a drawback to the city, since rain for drinking water was caught in vats from house-gutters, the piped water not being potable. Prolonged drought, which is too easily possible in an equatorial climate where at least 75 inches annually is required, sometimes exhausted vat supplies, and an unsatisfactory chlorination of piped water had to be resorted to. This

³The mud among the piles probably provided the breeding ground for *Stegomyia*, the mosquito carrying the yellow fever which gave the colony such a dreadful reputation in the 19th century. Sailors refused to sign on for voyages touching Georgetown, and it was almost impossible to recruit white clerks. Dickens sends Mr. Jingle to Demerara, presumably as the worst place he can think of; Macaulay compares London in the Great Plague with the Demerara of his own day. Yellow fever vanished seventy years ago.

⁴Plenty of stone is available. There is simply no demand for it.

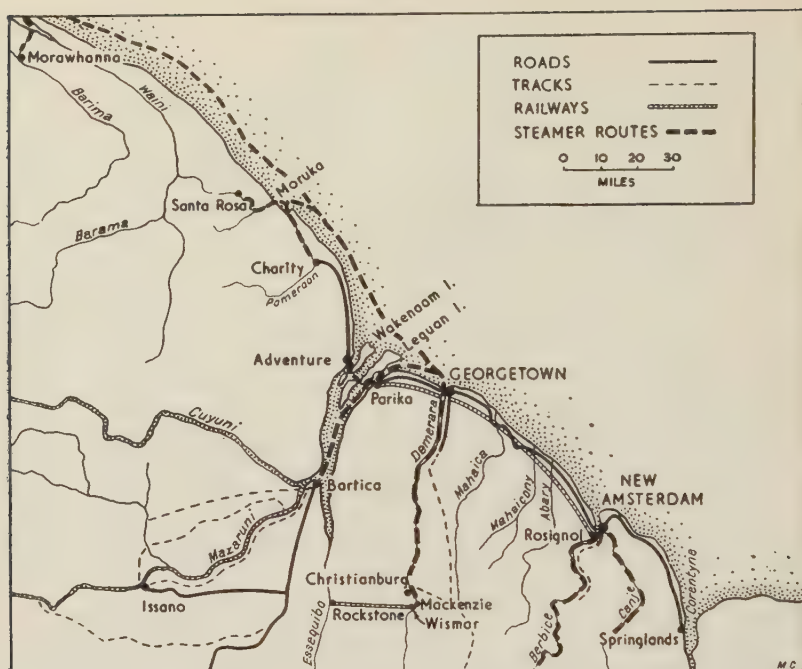


Fig. 3.

is currently being remedied, and a potable supply is being provided by purification of water from the wet savannah.

Excessive rains drown cattle on the flat coasts, prevent the ripening of rice, and reduce the sucrose content of the cane; drought spoils the rice crop, reduces the size of the cane crop, and is sometimes accompanied by typhoid epidemics. These troubles affect Georgetown very closely. Irregularity of rainfall makes adequate preparation against them almost impossible. The average annual rainfall at Georgetown is 90 inches, but in 1922-27, for instance, the totals were (in inches) 104, 81, 88, 61, 82, 122. However, every part of the coast suffers the same drawbacks.

Land communications are poor (Fig. 3). The Colony's chief road, from Georgetown to New Amsterdam ferry, is metalled only for a few miles, and is otherwise surfaced with burnt earth which suffers in heavy rains, and in dry spells when the sun temperature may be 150° F. The other roads of the Colony are all of burnt earth and suffer similarly. Apart from a road to the airfield 24 miles up the Demerara River, only the coast road runs more than twenty miles from Georgetown. The two lengths of railway are of different gauge, and estates west of the Demerara in particular make little use of the line. The line to Berbice is relatively busy and efficient. Its western section, opened for traffic in 1848, was the first railway in South America.

Private sloops and yawls link the Pomeroon, the Essequibo islands, and the Berbice and Corentyne Rivers with Georgetown. The estates

make much use of sea-punts, sloops and yawls, for transporting sugar to the port. Ferries cross the mouths of the Berbice, Demerara, and Essequibo more or less frequently each day.

RACIAL COMPOSITION AND GROWTH OF POPULATION

The racial composition and growth of the population of Georgetown contrasts with that of the country at large (Fig. 4). The contrast is partly due to the vicissitudes of the sugar industry and partly to differences of temperament between different peoples.

The accompanying table indicates the growth of population in town⁵ and colony. The diagram shows something of the racial distribution between town and country.

TABLE I

Year	Population of British Guiana	Percentage Decennial Increase for British Guiana	Population of Georgetown	Percentage Decennial Increase for Georgetown	Percentage of Total Population of Colony in Georgetown
1821	98,000 (app.)	—	12,600	—	12·9
1841	98,154	0·16	23,000	82·5	23·4
1851	135,994	38·6	25,508	10·9	18·8
1861	155,907	14·6	29,174	14·4	18·7
1871	193,491	24·1	36,562	25·3	18·9
1881	252,186	30·3	47,175	29·0	18·7
1891	288,328	14·3	53,176	12·7	18·4
1901	295,896 (est.)	2·6	55,400	4·2	18·7
1911	296,041	0·05	57,577	3·9	19·4
1921	297,691	0·56	59,624	3·6	20·0
1931	310,933	4·5	69,663	16·8	22·1
1946	375,819	20·9 (15 years)	94,077	30·5 (15 years)	25·3

The sharp decline of the sugar industry after Emancipation (1834–1838 in this Colony) is clearly reflected in the first two sets of figures. Total population showed little increase, while the town population doubled, and the overcrowding which is still prevalent in Georgetown began—this in a country with three persons to the square mile.

The proportion of negroes in the town population has been markedly high ever since. The balance between town and country was restored by the importation of indentured labour, mainly from India, the United Provinces supplying 80 per cent. This continued with few breaks from 1847 to 1917, and despite the provision of free return passages, East Indians are now the principal racial group in British Guiana, forming 44 per cent. of the population in 1946 against 42 per cent. in 1931. The proportions of races in Georgetown are very different from those in the Colony as a whole. In the town, "Africans" form more than half, and persons of mixed-race about one-quarter, of the population; in the

⁵Figures for Georgetown include the populations of the contiguous villages of Kitty and Lodge.

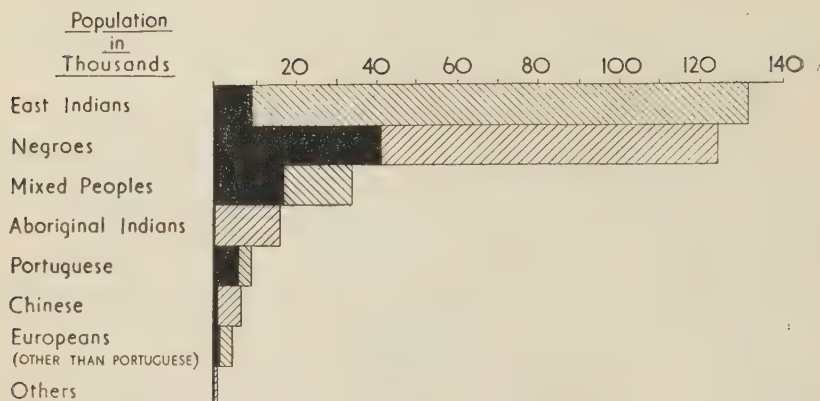


Fig. 4.

Colony as a whole they are barely half the total. East Indians form only one-tenth of the population of the town, but 44 per cent. of the population of the Colony. Europeans and Chinese are also more strongly represented in the Town than in the Colony.

From the middle of the last century to the 1920's, natural increase by excess of births over deaths was appallingly low or even negative, and while the Colony maintained its strength by immigration, Georgetown drew on the countryside, extending its boundaries to accommodate the influx. The severe competition of other sugar-producing countries has greatly reduced the number of estates. There are now only 25 sugar estates in British Guiana (though some include several plantations originally separate) and these, though producing more sugar than ever before, need fewer workers. In 1947 they employed about 28,800 workers and had a resident population of 72,000 or only 19 per cent. of the population of the Colony. In effect, the abandonment of so many estates, including those of the whole coast between the Essequibo and the Pomeroon, has driven many labourers into the city.

Lesser immigrations, of Portuguese from Madeira, and of Chinese from South China (which still go on in an unorganised, small-scale way) have added influential elements to the community, while a large number of negro and white families owe their origin to overcrowded Barbados.

CHARACTERISTIC OCCUPATIONS

Many of the emancipated slaves settled on parts of abandoned estates. These became the coast villages. Since cane is grown by independent farmers wherever a grinding factory is near, the villages remain largely dependent on the sugar industry. The amount of sugar so grown is a very small fraction of the total, but the cane farmers form a useful reserve labour force for busy times on the estates. Ground crops (e.g. yams, eddoes, tannias, cassava, ochroes), fruit and rice are

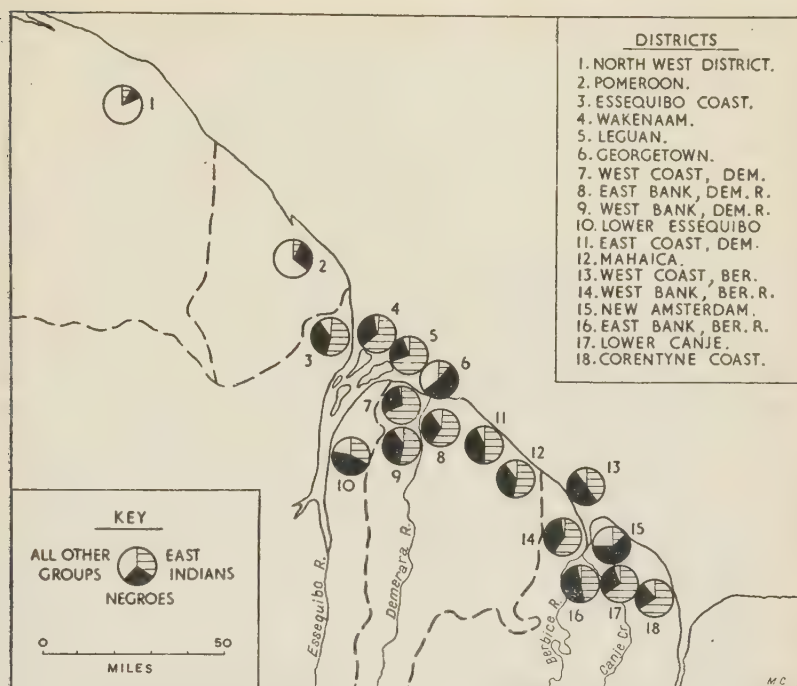


Fig. 5.

widely grown, and efforts are being made to make the Colony self-supporting in green and root vegetables.

The East Indian, on the sugar estate or occupying abandoned land (Fig. 5), has founded the Colony's rice industry. Climatic and commercial fluctuations had hitherto prevented the establishment of a sound export industry, but the withdrawal of Burma from the international market since the war has left British Guiana in a strong position. Rice is a staple food in the West Indies, and there is no serious competitor within the area. British Guiana has, therefore, been able to enter into long-term agreements with a number of the West Indies Governments for the supply of rice. The quality of the rice is excellent, but fluctuations in the size of the exportable surplus, and the superior organization of the Burmese industry, prevented British Guiana being more prominent as a rice exporter before the war. In 1939, in addition to supplying its own considerable needs, the Colony exported 28 million lb. of rice. In 1947, although the crop was much affected by drought, 44 million lb. were exported. Cultivation is almost wholly carried on by independent farmers and their families. There are about 13,000 rice farmers. The value of the rice industry is recognised by the Government, which gives support in a variety of ways : by scientific research into the production of new varieties by the Department of Agriculture : by providing a regular steamer service to Trinidad ; by applying Colonial Development and Welfare funds to a

comprehensive coast drainage and irrigation scheme ; by conducting a large-scale experiment in the mechanisation of rice cultivation ; and by installing an American rice mill in the Mahaicony—Abary area (East Coast, Demerara). Rice is now third in the list of exports.

East Indians are the principal cattle herders on the coast. A milk marketing scheme, inaugurated during the war, proved so beneficial to both producer and consumer that it has been continued. There is scope for the production of far more than the present quantity of milk. The frugal habits of the East Indians have enabled them to gain control of a large part of the village lands. They predominate in most agricultural areas, and have taken comparatively little to town life.

Negroes are very prominent in the industries of the interior. Their superior bodily strength and the speculative nature of the extractive industries encourage them in the enterprises of the forest, while the competition of the East Indian repels them from the coast. In town, large numbers are in official posts and the professions. They undertake most manual and engineering trades, and are prominent as policemen, sailors and domestic servants. With all this, their roots are still in the land, and they are numerous in the agricultural villages of the coast.

The Portuguese did not at first acclimatize well. Those who remained soon left estate work for peddling, which developed into shop-keeping and commerce of broader scope. They have completely abandoned agriculture, though they are often landlords.

The Chinese were slower in taking to business, but they also have left agriculture for shop-keeping (chiefly grocery), small importing businesses, laundries and handicrafts. Perhaps because of their late start, they have not attained to the same opulence as many of the Portuguese. Their numbers are increasing, while those of the Portuguese are decreasing. These two peoples are the chief financiers of the gold industry, more particularly of that 50 per cent. of gold-seekers who work on a very small scale.

The "mixed" peoples are almost wholly town dwellers, and are prominent as shop employees and office workers.

Individuals of all races except the aboriginal Amerindian are found in positions of importance in the community.

TRADE OF THE COLONY THROUGH GEORGETOWN

Georgetown is almost devoid of manufactures, other than those which are carried on locally in any part of the world. Matches, cigarettes, biscuits, mineral waters and shirts are made almost wholly from imported raw materials ; hammocks, small boats, furniture, jewellery, rum blending, and fats and copra from the coconut, all utilise local raw material.

The primary processes of sugar-refining are all carried on in the estate factories, and rice milling and rice-flour manufacture are carried out within the Colony. Gold and diamonds are exported in their raw state, the former wholly to England, the latter to Belgium and the United Kingdom in the proportions of two to one. Bauxite contributes

little to activity in Georgetown, for though the most flourishing of industries, only a primary process of compression is performed in the Colony, and the ore goes direct from Mackenzie on the Demerara to Canada or New Orleans, where the requisite large amounts of cheap electricity are available for further processing.

The United Kingdom and Canada are easily the Colony's best customers, taking over four-fifths of its exports. Currency advantages and long-term agreements make the United Kingdom a better customer now, but Canada took over half the exports shortly before the war. Sugar, with its by-products, rum and molasses, was in 1947, worth more than all other exports together. Its value was three times as great as that of its nearest rival, bauxite. Rice, diamonds, timber and balata are the other important exports.

The volume of trade between Georgetown and the West Indies has doubled since 1939, chiefly owing to the increased trade in rice, but is still only one-tenth of the total trade of the Colony. A busy small-scale traffic by schooners takes timber, firewood and charcoal to the islands, which are very short of wood, and returns with coral from Barbados for rough road-surfacing, and asphalt and petroleum products from Trinidad.

Trade with other countries of the South American continent is very small indeed. Foodstuffs from the Argentine are the only items of importance. Similarity of products and difficult communications are the cause of this lack of traffic. Except for little-used land and river routes into Brazil and Venezuela, all trade that cannot be conducted by air must go directly by sea *via* Trinidad.

Imports are chiefly manufactured goods and foodstuffs. Sixty per cent. come from the United Kingdom and Canada, and a quarter from the U.S.A. Easily the first in value are machinery, cotton goods, and flour. Other commodities of importance are metal goods, chemical manures, bags and sacks from Calcutta, and soft woods.

FUTURE DEVELOPMENT

British Guiana and the West Indian islands are complementary in a number of ways, and there is a strong case for colonizing parts of the mainland colony from the over-crowded islands. Undue optimism and pessimism have alternated on this matter, but the *Report of a Commission of Inquiry into the Economic Potentialities and Settlement Possibilities of British Guiana and British Honduras* of 1948 has arrived at what appears to be a reasonably balanced conclusion. It points out that there is no scope for heavy industry, small-holdings or (except perhaps on the edges of the Kanuku Mountains) European settlement. The coast lands must be reserved for the present population, which is growing rapidly and will probably grow much faster as the result of recent highly promising experiments in the control of mosquitoes by D.D.T. Agriculture for immigrants must be organized on a plantation scale, and heavy capital expenditure must be faced in providing transport to the interior and preparing lands. As a beginning, a

thousand workers could be employed extracting timber from the Bartica triangle and along the lower Essequibo—a project which would support four thousand persons and produce three million cubic feet of timber. A further four thousand workers could be employed producing bananas on 10,000 acres of land along the lower Essequibo. Cocoa-growing and an extension of cattle ranching are mentioned as possibilities. The West Indies section of the Colonial Development Corporation is in existence, to prepare plans and organize finance. In addition, schemes to expend over £1.3 million of Colonial Development and Welfare Funds have already been approved for improving drainage and providing irrigation on the fertile coast lands, of which the Bonasika scheme, for the irrigation of West Demerara, is almost complete. The rice industry and the coast cattle-herders will be chiefly benefited by this and schemes for the Corentyne coast and West Berbice.

Altogether, there is more promise of solid development now than ever before. Georgetown will undoubtedly grow as a result, probably disproportionately if the experience of capitals of other under-developed countries is repeated. The city has room for physical expansion, given drainage, on land exactly similar to that already occupied. The development of the coast lands will give the impetus for improving communications, and no rival to Georgetown is likely to arise. Developments along the lower Essequibo may lead to the dredging of a channel into the great river, to permit ocean-going vessels to load timber and bananas there. Ships loading bauxite at Mackenzie on the Demerara River already by-pass Georgetown, and something similar may occur on the lower Essequibo. Nevertheless, Georgetown is sure to benefit, if only indirectly.

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THE DEVELOPMENT OF THE PASSENGER PORTS OF SOUTH-EAST ENGLAND

J. H. ANDREWS*

MEDIAEVAL AND EARLY MODERN TIMES

THE channel ports of Kent and Sussex have always been engaged in the traffic in passengers, mail, government and press dispatches, and goods of a fragile or perishable character. Ideally the physical geography of such ports should combine minimum distance from the continent with the possession of an adequate natural harbour, and the fact that none does enjoy such a favourable combination has greatly affected the history of all.

Dover, it is true, was for many centuries an exception. It is said that the Dour was once navigable up to two miles from the coast, and as late as 1582 there were men living who could remember "all clean sea" between the two cliffs. In the reign of Henry VII, however, a pier was built enclosing Dover's first artificial harbour, the "Little Paradise," now occupied by the docks, but this seems merely to have accelerated the silting of the bay. By 1533 Dover haven had ceased to exist and a new artificial harbour was constructed. Its maintenance proved extremely difficult, owing to its exposure to both storm waves and drifting shingle from the south-west. By 1750 eight Acts of Parliament had been passed granting money for the repair of the harbour but

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little permanent improvement had been effected. Defoe, writing in 1727, judged it "an ill-repaired, dangerous and good-for-nothing harbour, very chargeable and little worth," and the French packet boats, which drew only 6 ft. of water, were often unable to enter the harbour except on spring tides. Altogether it has been estimated that over forty million pounds have been thrown into the sea at Dover, and it is doubtful whether the port would ever have achieved importance, if it had not been an established port when harbour works became necessary, and if these works had not been so closely associated, technically, with the fortification of the town.

At any rate, Dover's pre-eminence as a passenger port has not been challenged since the Middle Ages. Besides its natural advantage, it held within its hinterland the town of Canterbury whose shrine was the destination of many cross-channel travellers, while Calais, which in the late fourteenth century replaced Wissant as its continental counterpart, remained an English possession until 1558. Moreover, from 1227 Dover enjoyed a legal monopoly of cross-channel passenger traffic. In Elizabeth's reign this monopoly was extended to include the mails, and by 1610 no less than forty-nine ships were licensed to engage in cross-channel traffic of these types. By the end of the seventeenth century a regular mail service was in operation to Calais and also to Belgium, at first through Nieuport, later through Ostend. With interruptions due to the French wars, this service continued throughout the century.

Many other south-eastern ports took an occasional share in the passenger traffic, but none was a serious competitor. In the seventeenth century Dover's passenger monopoly was extended to the two nearest natural harbours, Rye and Sandwich, but only the former seems to have taken much advantage of its right. Rye possessed a considerable French population and important commercial connections with France, ranking in 1703 as the fourth English port for the import of French goods. In nine months in 1635-6, 215 passengers left the port, all for Dieppe. Later the traffic fell off, at first because of the French tax on foreign shipping, from which the Dover packet boats were exempted, and later because of the decay of the harbour. At this time harbour improvements were financed not by competing private companies, but by Parliament, which after its experience with Dover was loth to involve itself with another port so close at hand. When attempts were made to revive Rye it was found that the decay had gone too far, and the port sank into an obscurity from which it has not since escaped.

In 1790 a regular service between Brighton and Dieppe was instituted, and in 1817 nine vessels were engaged carrying 4,300 passengers—considerably more than the number travelling between Dover and Ostend twenty years later. Even in 1801 Brighton was the largest coastal town between Chatham and Portsmouth, and travellers using it saved ninety miles over the Dover route. Brighton thus became important despite its lack of harbour facilities, a deficiency that was scarcely made good by the construction of the Chain Pier.

THE ADVENT OF THE STEAM-SHIP

In the early days of steam, ships expended most of their power in carrying their fuel, but on short trips this problem was not acute, and the regular use of steamers on the cross-channel routes began in the second decade of the nineteenth century. In the days of sail, a normal crossing from Dover to Calais occupied five hours, but in stormy weather voyages of five days were not unknown, and delays of five weeks in wind-bound ports were recorded. Steam-power vastly improved both the speed and the regularity of the service, and in 1836 the five packets working from Dover made the crossing four times a week, reaching Ostend in six hours and Calais in two and a half. During this period the inadequacy of Brighton was increasingly felt, and several new routes appeared. Steam packets ran between Newhaven and Dieppe in 1825, Shoreham and Dieppe in 1826, and from Rye in 1838, although this last service failed within a year.

THE ADVENT OF THE RAILWAYS

Once the railways had been developed, the regularity of the new steamer services made possible an intimate connection between the two, a connection which has existed ever since. The geographical consequences of railway development in this field were very extensive, and can usually be traced to the competition between the different companies and their relations with the British and foreign governments and the various harbour authorities. The railway companies were eager to take a hand in the cross-channel traffic, and although their direct participation was illegal until 1852, it was not difficult to establish nominally independent steam-packet companies working in close association with the railways. Three companies were involved in this area: the South-Eastern, the London, Chatham and Dover, and the London, Brighton and South Coast.

The last-named company opened a line to Brighton in 1841, this town having been connected with Shoreham in the previous year. Shoreham was certainly the best harbour on the Sussex coast. It had long been troubled with a shingle spit diverting the mouth of the Adur as far east as Portslade, but in 1816 a permanent cut had been made opposite Kingston. The opening of the Paris-Rouen railway in 1843 made the Shoreham-Dieppe route at once the shortest and the cheapest between the two capitals, but the railway company and the harbour authorities disagreed over terms, and the service soon ceased. As a last resort the company turned its attention to Newhaven. Hitherto it had been doubted whether a branch line to Newhaven would pay for its maintenance, and this doubt was justified by the state of the harbour at this time. The course of the Ouse had been straightened in 1767, and piers had been constructed at the river mouth, but the low-water depth in the harbour was only two or three feet when the Lewes-Newhaven railway was opened in 1847. Dredging operations costing £10,000 were necessary before the company's ships could be properly accommodated. The modern harbour, with a low-water depth of

eleven feet, dates from 1891. Since the eighteen-fifties the Newhaven-Dieppe service has operated without interruption, and as its fares were cheaper than those of the other companies it was for a long time more frequented than the Folkestone-Boulogne route. At one time Newhaven was supplemented by Littlehampton, which succeeded Arundel as a port when its railway was opened in 1863. Services were run to Dieppe, Honfleur, St. Malo and Jersey, but by 1882 all these had been absorbed by Southampton and Newhaven.

The South-Eastern's line to Folkestone was opened in 1843. It has sometimes been supposed that the modern port of Folkestone owes its origin to the railway, but this is a mistake. Folkestone harbour was constructed from Telford's designs in 1809, and had been twice enlarged before the arrival of the railway. The previous existence of the harbour, together with the physical difficulties delaying the construction of the coastal railway from Folkestone to Dover, led the company to arrange a service from Folkestone to Boulogne. In the following year Dover was reached, and a subsidiary company was formed running packets from Dover to Calais and Ostend. In 1846 the line reached Ramsgate, which had possessed an artificial harbour of refuge for the past hundred years. Ramsgate is nearer to Ostend than Dover, and for a short time the Belgian mail service was operated from this port.

In 1854 the government put the mail services out to contract, and eight years later this contract was offered to the South-Eastern, which declined it and thenceforth confined its activities to the Folkestone-Boulogne route. At the time this decision did not seem unwise; Calais had no rail communication with Paris until 1867, and the majority of passengers used the Folkestone route. The mail contract at Dover was obtained by the London, Chatham and Dover company, whose line reached Dover via Canterbury in 1861. The two main cross-channel routes remained distinct and in competition until the amalgamation of the two companies in 1899.

By the seventies Dover had surpassed Folkestone as a passenger port. This was due partly to the opening of the Calais-Boulogne railway and partly to harbour improvements at Dover. In the thirties Dover Harbour was dry at low water and although several schemes were attempted, none was successful until the completion of the Admiralty Pier in 1871. Thenceforth, for the first time, passengers could disembark directly, without having to be taken ashore by boat. The huge modern harbour at Dover dates from the end of the century.

One other service remains to be considered. In 1874 the Dutch government decided to establish a mail service in competition with that operated by the Belgians to Ostend. The L.C. & D.R. secured this contract. Ramsgate was the nearest harbour to Flushing, but an agreement with the South-Eastern prevented the use of ports between Margate and Hastings. The only alternative was the mouth of the Medway. Sheerness was used at first, but after 1876 the newly-constructed pier at Queensborough was used. Not to be outdone either

in commercial enterprise or terminological loyalty, the South-Eastern built a pier in the Isle of Grain, christening it Port Victoria. The Queenborough service was not very successful. During the next twenty-five years the railway was damaged by floods and the pier twice destroyed by fire. On these occasions the service was moved first to Dover, and later, after the amalgamation, to Port Victoria. After the first world war the Dutch mail service was transferred for a time to Folkestone, but since 1926 it has operated from Harwich. There is still a passenger service from Folkestone to Flushing, however.

CONCLUSION

The most recent developments in cross-channel traffic, the train and car ferries, have involved no changes in the ports used. Thus, of the eleven ports discussed only three have survived to the present day. Only one, Dover, has played a continuous part in the history of cross-channel passenger transport. In the case of the others, a process of trial and error has been necessary, owing to the absence of geographical conditions suggesting an obvious choice. Some of the successful choices have become failures through changes in physical geography or technique. Some of the errors, committed in the first place for reasons which seem wholly insignificant, have been perpetuated when the investment of capital has made their subsequent abandonment uneconomic. The situation of the three present channel ports in this region, and indeed the fact that there are three of them, cannot be fully explained in terms of present-day conditions, and cannot be explained at all without a fairly detailed knowledge of their geographical, technical and legal circumstances throughout the last few hundred years.

Numbers of passengers carried on the different routes.

	Dover— Calais	Folkestone— Boulogne	Newhaven— Dieppe	Dover— Ostend
1860	76,318	96,652	36,899	5,449
1887	235,695	116,657	72,531	43,079
1900	316,156	174,676	270,124	110,481
1933	339,772	295,227	213,024	286,547

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SOME ASPECTS OF RURAL SETTLEMENT IN COUNTY DURHAM

HARRY THORPE*

FROM the functional point of view rural settlements may be defined as those which depend for their livelihood on the exploitation of the soil. This definition can be applied directly to dispersed farmstead settlements, but requires some modification when applied to nucleated villages. Among the population of such a village as *Heighington* in south-central Durham one can identify three main occupational groups. The first group consists of farmers or farm labourers who live and work within the village, or within the parish, deriving a livelihood from the land. The second group comprises those folk who sleep in the village but work at a distance; apart from a small number engaged in agricultural work in other parishes most of the "outside" workers are employed in shops, factories and offices in and around nearby towns, such as Darlington. The third group is not directly engaged in agriculture but provides services which are of benefit to the agricultural community within and around the village. This group includes the village smith, postmaster, auctioneer and shop-keepers, as well as police, teachers and clergy who cater for non-material things. The rôle of a village as the centre of exchange for goods and ideas within a distinct region, geographical or administrative or both, is just as important as its function as an agricultural producer.¹

The distinction between urban and rural nucleated settlements in County Durham as shown in Fig. 1 is based on the function of each settlement and not on the number of its population. Thus the numerous small mining villages on the Durham Coalfield are included in the same category as the industrial town of Consett with its important iron and steel industry. For the purposes of this account an urban settlement may be defined as a nucleated settlement in which the majority of the working population is engaged in non-agricultural occupations. On the other hand certain of the services of many urban centres may extend to surrounding agricultural communities, so that the distinction between urban and rural based on function is often one of degree. For example, although a large part of the male working population of Wolsingham is employed in the local steel works the

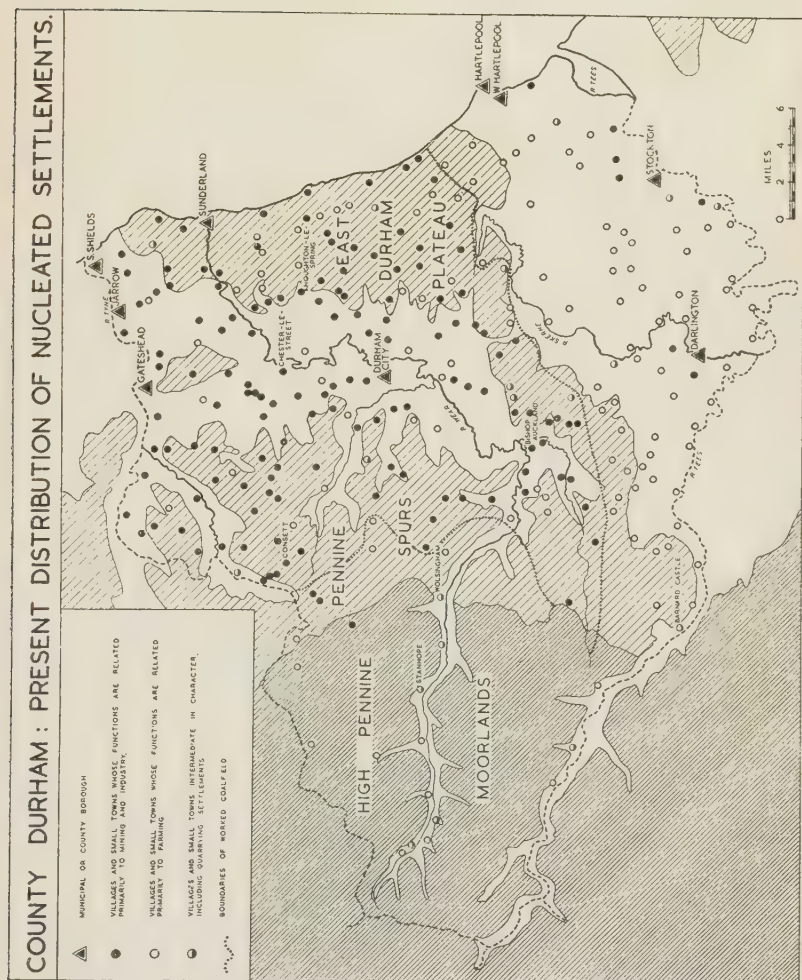
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¹For further discussions of rural and urban settlements see:—

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COUNTY DURHAM : RURAL SETTLEMENTS.

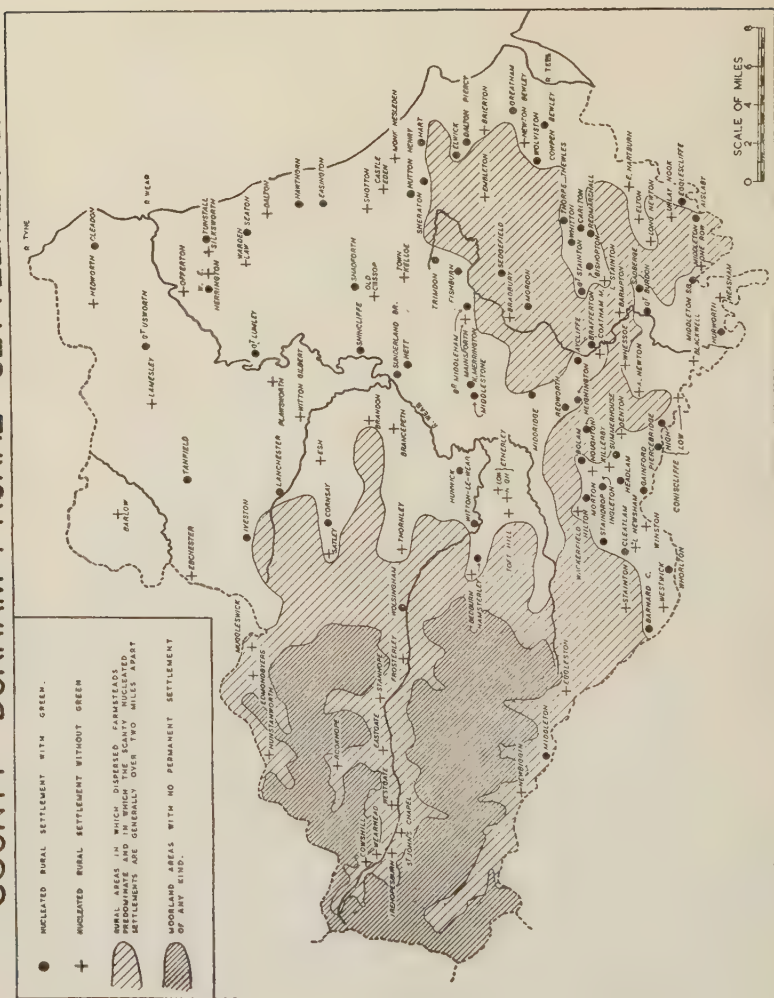


FIG. 2.

settlement's importance as the centre of an agricultural district makes its classification as an urban or rural centre difficult. Accordingly Wolsingham has been shown in Fig. 1 by a special symbol indicating its intermediate function. Barnard Castle, Middleton-in-Teesdale, Easington, Stanhope, St. John's Chapel and Wearhead are others in the same category. The latter provides not only agricultural labour and services for the important cattle and hill-sheep area of upper Weardale, but in addition many men are employed in local quarries producing ganister, fluorspar and limestone.² Stanhope and St. John's Chapel³ in Weardale, and Middleton-in-Teesdale, are other important quarrying centres. Because of its close association with rural areas there are strong grounds for considering quarrying as a rural occupation in Durham, especially when one considers that many quarrymen are also small holders.

It would clearly be an advantage to apply some formula, based on the proportion of agricultural to non-agricultural workers, when distinguishing between urban and rural nucleated settlements. Unfortunately, statistics collected by the Ministry of Agriculture and Fisheries of the number of persons engaged in agriculture are available only for parishes, so that without lengthy personal investigation one cannot determine the data for the nucleated settlements within each parish. Similarly the Ministry of Labour and National Service will readily supply the numbers of insured agricultural employees working in the various Employment Exchange Areas, but the data are not available for particular villages or market towns.⁴ Accordingly Fig. 1 has been prepared from personal knowledge of the settlements reinforced by statistical information whenever available. The major mining and industrial towns and villages are relatively easy to classify but, as we have seen already, certain settlements intermediate in function do occur. Differences of opinion might lead, therefore, to changes in the classification of a few sites but on the whole the pattern of the map would remain substantially the same.

From Fig. 1 it is clear that nucleated rural settlements are characteristic of the southern part of the county, particularly the valleys of the middle and lower Tees and its tributary the Skerne.

²Rail consignments despatched from Wearhead in 1948 averaged about 700 tons combined weight of ganister and limestone each week, as well as 150 tons of fluorspar. The ganister and limestone went principally to the Teesside ironworks for use in refractory materials and as a flux respectively. Most of the fluorspar was sent to Clydeside. An important by-product of the fluorspar workings to-day is lead, some 50 tons of ore being despatched by rail from Wearhead every six weeks. These statistics apply to rail consignments only. Considerable amounts of ganister, limestone and fluorspar also left the district by lorry daily.

³Rail consignments of ganister from St. John's Chapel during 1948 averaged 1,000 tons per week. In addition considerable quantities went by road.

⁴For example in July, 1948, in the Employment Exchange Area of Middleton-in-Teesdale (which included the Durham parishes of Forest and Frith, Newbiggin, Middleton-in-Teesdale and Eggleston, and the North Riding parishes of Holwick, Lunedale, Mickleton, Romalldkirk and Hunderthwaite) 151 insured employees were engaged in agriculture, 243 in quarrying, 26 in manufacturing industries, 24 in building and contracting and 290 in services.

Here deep drift overlies the Magnesian Limestone and Triassic rocks, producing good mixed farming land with a high proportion of arable, although around Sedgfield the proportion of grassland increases on the heavy Boulder Clays which in places are poorly drained, as the name Sedgfield suggests.⁵ The marked concentration of the urban settlements in the centre and north of the county is closely related to the extent of the exposed and hidden coalfield (shown by a dotted line on Fig. 1), but rural settlements dovetail into the urban pattern in two important areas—along the East Durham Plateau, and to a lesser extent in the central Wear Valley and the adjoining belt of eastward-trending Pennine Spurs.⁶ The East Durham Plateau is generally good farming country, much of the arable land being devoted to fodder crops which maintain dairy cattle supplying milk to the mining villages of the hidden coalfield. In the belt of Pennine Spurs rural villages, such as Satley⁷ and Cornsay, are also to be found among the mining settlements, although, as on the East Durham Plateau, some of the resident population leaves the village to work at a distance in mines or in industry. The High Pennine Moorlands have few nucleated settlements and most of these lie in the sheltered valleys of the Tees, Wear and Derwent. Cowshill (1,200 ft.) at the head of Weardale is the most elevated nucleated rural settlement on the map.⁸

NUCLEATED RURAL SETTLEMENTS WITH GREENS

Figure 2 shows the distribution of nucleated rural settlements, together with their names,⁹ and also indicates the areas in which

⁵See the map of Land Use Regions in *The Land of Britain* (Report of the Land Utilisation Survey of Britain), Part 47, County Durham, 1941, p. 228.

⁶The physiographical regions shown on Fig. 1 can be summarised briefly as follows:—

High Pennine Moorlands. Bleak open moorland with some scattered trees; generally above 1,000 ft. rising in places to over 2,000 ft.; Carboniferous Limestone series and Millstone Grits predominate; largely drift-free.

Pennine Spurs. A belt of dissected upland, average height 500–600 ft.; Millstone Grits and Coal Measures Sandstones predominate with thin Boulder Clay.

East Durham Plateau. A low plateau (400–500 ft.) of Magnesian Limestone bounded by a well-defined and much-dissected escarpment on its western edge, and a line of steep cliffs overlooking the east coast; limestone exposures appear through thin Boulder Clay; glacial sands and gravels cover large areas.

Valleys of Tyne, Wear and Tees. Undulating plains covered by deep Boulder Clay are characteristic of middle and lower courses; river terraces, glacial sands and gravels border main streams.

⁷Quarrying was an important occupation at Satley until about 1930. Apart from three men who are still engaged in quarrying and one man who is employed at Consett Iron Works, the working men of Satley are engaged in the village or parish as farmers, agricultural workers and roadmen.

⁸Waskerley (1,150 ft.) a station on the important mineral line connecting Stanhope and Burnhill, is the second highest nucleated settlement in the county but few of its inhabitants are engaged in farming. The mineral line serves an important quarrying area, the freight averaging about 500 tons of sand and 80 tons of fluorspar per week with, in addition, large consignments of limestone, amounting to about 700 tons per month, during the winter months.

⁹The number of places shown on Fig. 1 is so great that their names could not be shown by lettering large enough to ensure printing legibly in this article. The reader should have no difficulty in identifying the urban settlements on a large-scale map. The rural settlements are named in Fig. 2, together with those settlements shown on Fig. 1 as of intermediate character.



Fig. 3.

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dispersed farmsteads predominate. The most characteristic form of settlement in Durham is the "green village" in which the homesteads cluster around an open grassy space or village-green forming the core of the whole settlement. A detailed description of the forms, distribution and historical geography of this interesting group of villages has already been published elsewhere¹⁰ so that a brief summary only is given here. Of the rural villages shown on Figure 2, 66 are green villages and, if one includes urban settlements which have or clearly once had greens, no less than 101 green settlements can be identified in

¹⁰H. Thorpe, "The Green Villages of County Durham," *Institute of British Geographers, Transactions and Papers*, 1949.

Durham. The settlements are located mainly to the south and east of the Wear, in country lying generally below 500 ft., and three classes may be distinguished according to the form of the green—broad-green (e.g. Heighington,¹¹ Fig. 3a), street-green (e.g. Trimdon) and those with a green of indefinite shape (e.g. Headlam). Similar forms occur in North Germany, Denmark and Southern Sweden. The combined evidence of history, archaeology and place-name study shows that many of these Durham villages clearly date from the Anglian conquest, but it is not yet confirmed that the green pattern originated then, although this is by no means unlikely. Pasture played an important part in the economy of Durham villages in the past, and the village green served as a compound within which the pinder could assemble stock at night and during the troublous times when the Scots raided south.

NUCLEATED SETTLEMENTS WITHOUT GREENS

The classification of green villages in the preceding section has been based on form. Other writers have classified villages in terms of relief, the extremes being the classic Valley Village of Peake¹² and the Hill Village,¹³ but considerations of economy and culture have naturally entered into such classifications. A complex of geographical and historical factors has influenced the development of our villages so that, except for such forms as the green village, which appear to have been deliberately planned, one can seldom formulate hard and fast rules for classifying rural settlements. In Durham this is especially true of those rural villages which have no greens, most of which seem to lack any fundamental plan. In many cases they have grown somewhat fortuitously as folk have swarmed around a site with particular advantages.¹⁴ Because of this rather haphazard coming together of folk such villages are often amorphous, unlike the regular forms of the green villages. The distribution of nucleated rural settlements without greens is shown on Fig. 2, from which it is clear that such settlements exist side by side with the green villages in the eastern half of the county but become the characteristic form in the west where green villages are rare. Different forms of such settlements have not been distinguished on Fig. 2, but the principal types will now be described.

Ordinary street-villages, in which the houses are strung along both sides of a central street without the intervention of a green, are common in Durham, as in other counties, and their form is so well-known that perhaps one may be excused for omitting an illustration.

¹¹Portions of Ordnance Survey 6 in. and 1:25,000 maps used as illustrations in Figs. 3 and 4 are reproduced by kind permission of the Director-General, Ordnance Survey.

¹²H. Peake, *The English Village*, 1922.

¹³See D. Sylvester, "The Hill Villages of England and Wales," *Geographical Journal*, CX, Nos. 1-3, Jan. 1948, pp. 76-93.

¹⁴For a description of various forms of village see W. Page, "Notes on Types of English Villages and their Distribution," *Antiquity*, I, 1927, pp. 447-468.

Frosterley¹⁵ and Chester-le-Street are good examples, the latter, as its name suggests, having grown up along the Roman road running southwards from Newcastle-on-Tyne to link up with Ermine Street at the crossing of the Humber. The cruciform village, which has grown up at the intersection of two important roads, although a common type in this country, is not characteristic of Durham. Castleside on the eastern flank of the Derwent Valley in the north-west of the county is a good example. So, too, is Sadberge to the north-east of Darlington; here the Roman road leading north from the Tees to Chester-le-Street climbs a rise of sands and gravels (part of a terminal moraine) on which Sadberge now stands and is intersected by the old road from Darlington to Norton-on-Tees.¹⁶ Sadberge has a green of indefinite shape, otherwise the cruciform village is seldom found associated with greens.

So far no attempt has been made to distinguish between a village and a hamlet, both of which are nucleated settlements. The word 'hamlet' is generally used with two different meanings, either to describe a small village (which immediately raises the question, "How small?"), or, in a legal or administrative sense, to describe a nucleated rural settlement without a parish church. It is immediately clear that our terminology should be more precise in meaning, and it is suggested that in describing forms of settlement the term 'dispersed hamlet' should be used for a loose cluster of homesteads, such as one finds at *Walworth* (Fig. 3b)¹⁷ and the term 'compact hamlet' for a small group of more or less contiguous homesteads, such as *School Aycliffe*, *Hulam* or *Denton* (Fig. 3b) which cannot, from the point of view of size and status, be classed as true villages. The dispersed hamlet of *Walworth* is clearly not so compact as a village, nor do the homesteads or their gardens lie side by side. On the other hand the distance between the dwellings is generally less than a quarter of a mile. Furthermore the folk living in the homesteads acknowledge a state of nucleation and a community feeling. In *Walworth* this pivots on the manor or castle; elsewhere the inn, shop or chapel forms the centre. Hamlets of this kind have often arisen in areas of relatively late clearing and have much in common with the Forest Townships of *Peake*.¹⁸ The place-name ending *-worth*,¹⁹ indicating an enclosure in wooded country, supports this belief. *Wackerfield*, situated in *Boulder Clay* in the middle *Tees Valley*, is another example of the hamlet settlement, the

¹⁵E. Ekwall, *The Concise Oxford Dictionary of English Place Names*, Oxford, 1947, explains the name as meaning "forester's clearing." The entries in *Boldon Book*, a Norman survey of part of the county, indicate that *Frosterley* was one of a group of clearing settlements springing up around *Wolsingham* and *Stanhope* in *Weardale* some time before 1183. The village is now an important quarrying centre on the main road penetrating *Weardale*.

¹⁶E. Ekwall (*op. cit.*) considers that *Sadberge* is derived from Old Norse *setberg*, meaning "flat-topped hill," a name very descriptive of its site.

¹⁷*Walworth* occupies a small exposure of *Magnesian Limestone* in the extensive *boulder clay* terrain in the middle *Tees Valley*. Wells were important for water-supplies in the past (Fig. 3b).

¹⁸*op. cit.*

¹⁹See E. Ekwall, *op. cit.* Also "The Chief Elements used in English Place Names," *English Place-Name Society*, Vol. I, Part II, Cambridge, 1930.

termination—*field*²⁰ often denoting an open tract in an otherwise wooded area. Hamlets rather than compact villages are characteristic of the heavy boulder clay land south of Sedgefield and such examples as Elstob, Foxton and Shotton are approached only by sinuous minor roads which terminate at the settlements.

Thus in settlement studies the distinction between a village and a hamlet should clearly rest on three things—the size of the settlement in terms of homesteads or population, the degree of nucleation and sometimes partly on its administrative or occupational function. In comparing the size of one compact village with another in the same region one should therefore use such terms as “a large village of a hundred houses” or “a small village of eighty people,” bearing in mind that a village classed as small in a prosperous farming district might be considered a large village in a poorer area of more dispersed population.

DISPERSED SETTLEMENTS

Fig. 2 indicates that large expanses of the High Pennine Moorlands have no permanent settlement of any kind, nucleated or dispersed. Such ‘barren’ areas generally lie above 1,000 ft., although on the valley sides of the upper Tees, Wear and Derwent the dwellings of hill sheep farmers are found up to about 1,500 ft., especially on the southward-facing slopes. Shepherds’ huts and shooting cabins are found here and there on the open moorlands but are occupied only for a few days in the summer and autumn.

Dispersed farmsteads are well distributed throughout the county, even within the urban areas, but two contrasting zones, one upland and the other lowland, of predominantly dispersed settlement can be recognised (Fig. 2). The scanty nucleated settlements which occur in these areas are generally considerably more than two miles apart. In the west the scattered farmstead is characteristic of the eastern edge of the High Pennine Moorlands, the Pennine Teesdale, Weardale and Derwentdale.²¹ Such farms are largely pastoral,²² store cattle and dairy cattle being the mainstay on the lower pastures, changing to hill sheep on the moorland proper, although in the summer store cattle are now being grazed up to 1,700 ft. in Upper Weardale.²³ Before 1914 many small holders derived a livelihood by

²⁰*Ibid.*

²¹The parishes in this upland area are very large, e.g., Stanhope 60,620 acres, Muggleswick 12,465 acres and Middleton-in-Teesdale 10,495 acres.

²²During the recent war many farmers ploughed up some of their lower pastures but most of these have now been re-seeded.

²³In July, 1948, the stock on two different farms in Upper Weardale was as follows :—

Farm A—a single farm of 140 acres at 1,200 ft. Dairy cows 15. Other cattle 12. Sheep 120. Horses 3. Poultry 65.

Farm B—a twin farm of 1,050 acres at 1,100 ft. Dairy cows 4. Other cattle 65. Ewes 250. Shearlings 65. Horses 3. Poultry 18.

It should be emphasised that but for the ‘Great Storm’ of early 1947 the number of sheep would have been considerably more. For example, Farm B usually carries about 500 ewes.

Since 1941 an annual Government subsidy has been paid on breeding ewes to encourage a more intensive use of the hill pastures. At present (1949) the subsidy

keeping a few cows and a small flock of sheep,²⁴ while the men folk supplemented the income by working in local stone and ganister quarries, lead mines and ironstone mines. Since 1920, however, the population in many areas has declined as small holders have given up their land and migrated east to the coal mining and industrial belt. Consequently, as around Irehopesburn, there has been an amalgamation of many of the small farms and small holdings to form larger units, and the surplus houses are now occupied by farm labourers or are used as summer cottages.

The second area of predominantly dispersed settlement occurs in S.E. Durham, particularly around Sedgefield, where mixed farming is typical on the heavy boulder clay soils which in places are badly drained. In this area the average density of farms is about three per square mile and nucleated rural settlements, both villages and hamlets, are generally considerably more than two miles apart.²⁵ As shown on Fig. 4a many of the farms, such as South Moor, Harpington Hill and Breckon Hill, are located on slight rises of land above the wetter floors of the shallow valleys. Thin patches of sands and gravels often cause slight elevations in the boulder clay plains and have been chosen for such farm sites as Harpington Hill, springs and wells²⁶ being important for water-supplies in the past. The name Bog Hall (Fig. 4a), like Sedgefield, emphasises the marshy character of many parts of this area. Amalgamation of farms has occurred in this area, too, so that one may find 'landless' farmsteads now occupied by farm labourers, as around the hamlet of Foxton. In the vicinity of the latter settlement a sample-farm of 400 acres, formed by the fusion of three smaller farms, had 250 acres of arable land in 1949 producing wheat, oats, barley, swedes, mangolds and potatoes, with the remaining land under clover seeds (for winter fodder and grazing), mixed crop (peas, beans and oats for winter feed) and ordinary pasture. The stock comprised 110 ewes and

is ten shillings per breeding ewe but after the severe weather of early 1947 it was for a time raised to sixteen shillings. Every year many Swaledale ewes are sent to the lowlands of S.E. Durham, especially to the Sedgefield area, for breeding with Border Leicesters to produce 'mule' lambs for mutton.

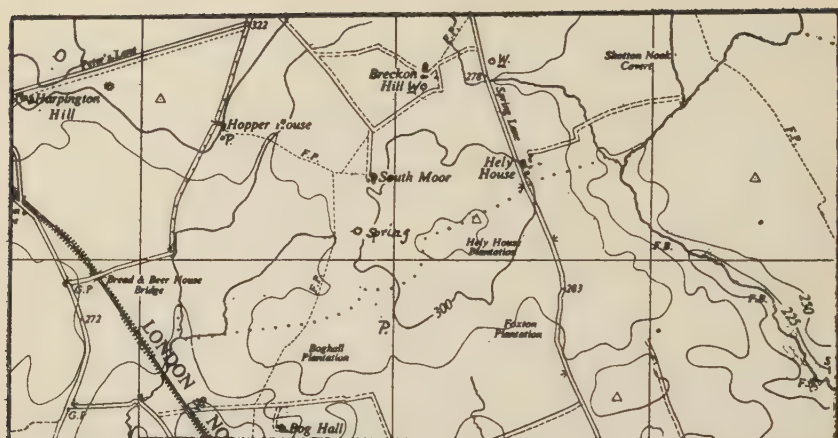
For further information on hill sheep farming see *Report of the Committee on Hill Sheep Farming in England and Wales*, H.M.S.O. Cmd. 6498, 1944. For a discussion on the types of farms and holdings see *National Farm Survey of England and Wales: A Summary Report*, H.M.S.O., 1946.

²⁴For such regions as Middlehope Moor each farmer and small holder has the right to a certain number of *stints* on the open moor, according to the number of acres of land that he holds. Stint holders committees decide each year what number of sheep per stint shall be allowed on the moor depending on the quality of the pasture. The number is usually four or five sheep per stint.

The system of grazing rights on Stanhope Common is, however, very different because a person holding only one acre of land has the right to put as many sheep on the moor as he wishes. The danger of overgrazing is greater on such tracts of intercommon than on a stinted common.

²⁵The parishes in this area, although somewhat larger than the average for the county are nevertheless much smaller than the moorland parishes of the west, e.g., Sedgefield 5259 acres, Grindon 3511 acres and Embleton 3425 acres.

²⁶On Fig. 4a wells and pumps are shown by the initial letters W. and P. respectively.



SCATTERED FARMSTEADS EAST OF R. SKERNE.

FROM O.S. 1/25,000

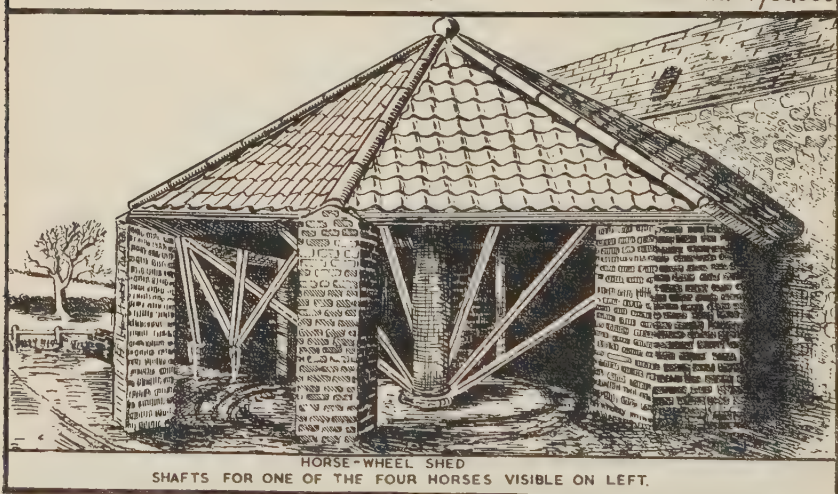


Fig. 4.

Crown Copyright of Fig. 4a Reserved.

160 lambs, mainly Mashams.²⁷ 50 store cattle (1 to 2 years old) and 50 feed cattle (over 2½ years). The latter were being fattened for market. Commercial milk production was unimportant on this farm. An interesting example of the dovetailing of arable and pastoral farming was provided by the practice of allowing ewes and young lambs to crop green wheat until the end of April. This somewhat unorthodox practice is favoured by some farmers on the grounds that it is good for the ewes and lambs, it strengthens the wheat, encouraging sturdier and more numerous stalks, and it rests the pastures.

The dispersed farmstead in E. and S.E. Durham differs not only in economy but also in type of building from the upland farms of the west.

²⁷A common Teesdale variety formed by crossing Scotch ewes with Teeswater or Wensleydale rams.

The latter are usually stone-built, with flagstone or slate roofs and whitewashed walls. In the east, Magnesian Limestone is an important material in many old farms but the use of red bricks and pantiles has been widespread. One farm building in particular—the horse-wheel shed—is common in East Durham but not in the more pastoral west. This building, illustrated by Fig. 4*b*, is geometric in form having usually seven sides,²⁸ six of which are open (except where brick or stone pillars support the roof) while the seventh side ‘ties’ on to a larger farm building the upper storey of which is often used for grain storage. The roof, almost without exception, consists of red or brown pantiles and forms a very picturesque feature. In the centre of the building is a thick upright wooden shaft with four heavy wooden cross-members at the top supporting a large circular cog-wheel about 40 ft. in circumference. These four arms each terminate in horse shafts, so that when four horses were harnessed and driven round the circular space (about 54 ft. in circumference) within the shed the large cog-wheel drove a tumbling shaft connected to a thresher in the adjoining barn. Horse-wheel sheds of this kind are common in Scotland, Northumberland and Durham, and to a less degree in the North Riding certainly as far south as the Vale of Pickering, but very few are in use to-day.²⁹ One at Heugh Hall, to the south-east of Durham City, was in use in 1947, but the mechanism is now being dismantled and the shed converted into an ordinary barn. Another example at Foxton has not been worked for sixty years, although the circular depression worn by plodding hoofs is still plain to see. Others have long since had all but one of their sides bricked in and now form dark store places with a pair of massive doors of wood or corrugated iron. Their busy days are over, for it is now more convenient to use the power-driven threshers that tour the farming districts in the autumn.

The scope of this article has been somewhat wide, deliberately so in that its purpose has been to draw attention to some of the many aspects of rural settlement that merit further study. The author is at present engaged in the preparation of a series of maps to show the form and distribution of green settlements for the whole country as part of a wider study of their historical geography. Unfortunately many of our villages are losing, or have already lost, their old personality. For example, a new village has sprung up on the northern outskirts of the street-green village of Shadforth in east-central Durham, leading to the gradual depopulation of the old village and the decay of many of its old homesteads, while further south in the vicinity of the broad-green village of Aycliffe a new town of 10,000 people—the smallest of our planned towns—is to rise and be known as Newton Aycliffe. It is important in this age of urbanisation to record the old character of our rural settlements before it is too late.

²⁸Some of the horse-wheel sheds are octagonal.

²⁹Motive power of this kind may have been in use in Durham for a long time. For example, Boldon Book, a survey of the Palatine Bishopric of Durham carried out in 1183, records the existence of a horse-mill at Oxenhall, near Darlington.

OBITUARY

KENNETH GEORGE TOWERS CLARK

K. G. T. CLARK had an outstanding record as a student at Leeds University in both the Departments of Geography and of Education. He then taught in a school for twelve months before being recalled to his *alma mater* where he devoted the rest of his life—twenty years—to its service as a member of the geography staff. At that time the Department still had many difficulties and prejudices to overcome. The value of Clark's contribution to the surmounting of these cannot be over-emphasised and all who have the welfare of the subject at heart must feel grateful for it though none so much as those who were privileged to have him as a colleague.

The son of a Yorkshire grammar school headmaster, Clark was himself a born teacher as well as a first-class thinker with a passion for the pursuit of truth. He was also the kindest of men, wholly unselfish, and full of humility. He will accordingly be remembered by a long succession of students, and by his colleagues past and present, as a man who not only enriched them intellectually but also as one whose whole conduct and attitude to life commanded their respect and affection and set them an example which challenged the best in them.

No one distinguished more quickly and unerringly than Clark between superficial and worth-while scholarship but he criticised none so much as he criticised himself. This he did to excess with the unfortunate result that he published little and his influence on geographical thought was much less widely exercised than all who had caught a glimpse of his mind would have wished.

Our profoundest sympathy goes out to Mrs. E. Clark and her family of three boys, the eldest of whom is only eleven years of age, and we trust that she will derive comfort in the knowledge that she is not alone in her mourning.

A. V. WILLIAMSON.

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GEOGRAPHICAL ASSOCIATION

THE OPENING OF THE NEW HEADQUARTERS AND SOME FUTURE PROJECTS

The new headquarters of the Association were formally opened during the weekend of October 13-14th. In association with this, on Friday evening, Professor L. Dudley Stamp, our president, gave a lecture in the University on "Sidelights on America," which delighted both our members and the many friends who joined us for this meeting. Saturday was occupied by a meeting of the executive committee in the morning, followed by an At Home from 3 p.m. to 5 p.m., held in our Library. This was attended by more than 100 members and guests representing local scientific societies and other educational and geographical bodies. During the afternoon, on behalf of Messrs. George Philip & Son, Ltd., Mr. E. O. Giffard presented a large globe to the Association as a gift to mark the opening of the new headquarters and the Jubilee Year of the Association in 1943. Professor Stamp expressed warm thanks to the City of Sheffield for the invitation extended to us by the City Council to move our headquarters to Sheffield.

In the evening, a dinner was held in the Refectory by kind invitation of the University. It was attended by 90 members and guests, including the Lord Mayor of Sheffield and the Lady Mayoress, the Chairman of the Libraries Committee and the City Librarian, and other civic guests. The Association was especially glad to welcome at these meetings and functions almost all of the members of its executive committee and parties from the Derby, Manchester, Leeds and Lincoln Branches, as well as many Sheffield members. We were honoured also by the attendance of representatives of the Royal Geographical Society, the Royal Scottish Geographical Society, and the Institute of British Geographers, of the President of Section E of the British Association and the President of the Manchester Geographical Society. Wide publicity was given to our gatherings in the Press and by the B.B.C.

The new premises give us room to enlarge the range of the Association's activities and members may be interested to know what form some of these may take. We have received a promise of the gift of a large collection of foreign topographical maps, which when received will make the basis of an extensive map collection which will be of value both to individual members and to parties of VI-form students making a "school visit" to headquarters.

We hope also in due course to encourage school visits with a view to teachers taking a class lesson in map-reading in our Library. The Library windows give expansive views across a large part of Sheffield and we hope to prepare panoramas that will provide keys to the views, suitable for use with various map scales so that classes can study maps and views intensively and under cover. It so happens that the Library building is located only a few minutes walk from one of the finest geographical viewpoints around Sheffield, and indoor map work in the Library might well be supplemented by a short excursion to see a wider view of the location of industry and the curious pattern of hill spurs and valleys to which the urban growth of Sheffield has been so closely related.

We are planning also to provide facilities such that distant schools or branches wishing to arrange a day's geographical excursion (by road or rail) could come to headquarters for light refreshments before proceeding to a works visit, a geographical tour of the site of Sheffield, or an excursion for local field-work in Derbyshire or elsewhere.

These activities, and, we hope, others, will make our new headquarters a centre of real use to members from all parts of the country, and will widen its functions within the Association. As yet such schemes are experimental, but we shall welcome specific enquiries from members or branches. Any such enquires should state the numbers proposing to make a visit; the ages (or forms) of school parties; alternative dates; whether works visits or suggestions for field excursions are preferred. Works visits cannot be organised on Saturdays and field excursions are best planned for the spring and summer months.

Apart from these new activities, we shall at all times welcome members to the Library for study and reference. The Library is open to members and visitors on weekdays from 9 a.m. to 5 p.m. It is also open on Saturday mornings from

9 a.m. to 12 noon. By special arrangement it may be possible to open at other times, during the evening and on Saturday afternoons, if the numbers of members desiring this warrants such an arrangement being made.

The Annual Conference, details of which were circulated with the September issue of *Geography*, is to be held at the London School of Economics from Monday, January 1st, to Friday, January 5th, 1951.

We welcome as our President for 1951 our old friend and longstanding member of Council, Mr. Leonard Brooks, in succession to Professor L. Dudley Stamp to whom warm thanks are due for considerable practical help during his year of office.

The 1951 Spring Conference will be held at Hull from March 30th to April 3rd. Accommodation is being provided at the Municipal Training College, but early registration and application to the Conference Organiser, Mr. H. F. Brown, 29, Barrow Lane, Hessle, E. Yorks., is essential. The programme and booking form is enclosed with this issue of *Geography*.

A sub-committee of the executive is exploring the possibility of organising an international conference of teachers of geography during the summer of 1951. It is hoped that a report on this project will be made at the Annual Conference. Further details will be included in the next issue of *Geography*, and any member who has special interest in attending such a conference should notify headquarters.

The suggestion made on p. 196 of the September issue that such an international conference might be combined with the Spring Conference at Hull has proved impracticable.

The Association offers its warm congratulations to Professor Wilfred Smith on his election to the Rankin Chair of Geography in the University of Liverpool, and to Professor Stanley Beaver, the first occupant of the Chair of Geography at the newly instituted University College of North Staffordshire.

The Honorary Editor offers his sincere apologies to members for the late appearance of the September and December numbers of *Geography*. Owing to his absence from the country in July and August, he was unable to assemble the material for the September issue until the second week of that month. Copy was dispatched to the printers on September 13th, and at the time of writing this note (November 14th) delivery is expected daily. It is hoped that members will be able to read this paragraph before the Annual Conference opens on January 1st.

The Secondary Schools Committee is hoping to draw up lists of :

(a) textbooks recommended for use in Modern schools ;

(b) geographical fiction suitable for School Libraries.

Members who can recommend books for inclusion in either list are asked to write to J. B. Goodson, 13, St. Andrew's Avenue, Colchester, and to supply the name of the book, author and publisher, the price and a brief note indicating the content, method of approach and value of the book and saying for what age-range it is considered suitable.

Readers of the September issue of *Geography* may have noticed that the reviews of *Fruits of Field and Forest* by Marjorie E. Kirtley and *Beyond the Narrow Seas* by C. Midgley on page 205 were unfortunately transposed in the preparation of copy for press. Editorial apologies are very sincerely tendered to the authors and publishers of both works.

REVIEWS OF BOOKS

MEMBERS of the Library should know that, with very rare exceptions, books reviewed in this journal may be borrowed from the Association's library. The review columns are, therefore, supplements to the catalogue.

Birmingham and its Regional Setting : A Scientific Survey. M. J. Wise (Editor). 18 × 24 cm. xx + 334 pp. Birmingham: The Local Executive Committee for the British Association, 1950.

This book was unanimously acclaimed by members at Birmingham as the best regional survey yet produced for an annual meeting of the British Association. It is neither a guide nor a handbook to the region, but a scientific survey of a very high order and of great interest to geographers. In the words of Sir Raymond Priestley it was intended "to provide a general background and to form a serious contribution to discussion and appreciation of the problems of the area." Both objects have been achieved with conspicuous success. It would be invidious to select for special reference any one of the 18 authors, each of whom displays competence, to say the least, in his own field. Readers may, however, like to know that members of the Department of Geography at Birmingham contributed the introduction and 10 chapters, while five were written by colleagues in other departments and five by authorities outside the University.

The Birmingham region as delineated includes the Birmingham Plateau and adjacent lowlands in the valleys of the Trent, Severn and Avon. The survey falls into four parts: the physical background; the evolution of settlement before 1700; the industrial revolution; and the modern regional and economic pattern. The first opens appropriately with a detailed description and definition of physiographic regions, to be followed by two condensed but surprisingly comprehensive studies in geology and geomorphology. Four chapters on climate, soils, vegetation and fauna complete the background survey. The evolution of settlement before the Conquest and from 1100 to 1700, together with a chapter on Domesday geography, form the subject-matter of part two. The third considers the impact of the Industrial Revolution in terms of changes in the regional pattern during the 18th century, the work of industrial pioneers and the development of technology, 1700-1900. Part four is concerned with modern developments and present-day conditions which are necessary to understanding of the peculiar problems of the region. Divergent trends of development, 1800-1950, in Birmingham itself and in the Black Country are revealed as clearly as their interdependence. Two further chapters discuss the industrial population and the regional functions and sphere of influence of Birmingham. Three others devoted to the Cannock Chase region, the East Warwickshire coalfield and agriculture of the Birmingham district complete the survey.

The whole is tastefully printed on good quality paper and illustrated by 77 exceptionally well-drawn maps and diagrams with a loose quarter-inch map of the region for good measure. A white cover protected by a cellophane dust-cover suggests western opulence and gives a distinctive appearance to what is itself a distinguished piece of work. In short, the Birmingham Committee have set a new standard in regional survey for the British Association, and has, at the same time made a major contribution to the literature of regional survey. A.J.H.

Northamptonshire : Its Land and People. P. J. Harris and P. W. Hartop. 18.25 × 25 cm. 135 pp. Northampton: Published by the Authors. 1950. 8/6.

According to the preface, this book is intended chiefly for the pupils of Northamptonshire schools. It deals in turn with the physical background, history, communications, industry and agriculture, and population.

The chapters on physical geography are the least attractive. There is no room in so short a work to expound the principles of geology and meteorology, and the misuse of geological terms is unfortunate. Slate is not an igneous rock, nor is Mesozoic synonymous with Jurassic time; it is not permissible to refer to the Lias as "a rock," or to the Northampton Ironstone as "a stratum."

The historical section, resting on abundant material, is better, although somewhat lacking in integration. The accounts of leather, iron and steel industries are readable and satisfying, except that the Marlstone iron ore is ignored, and that the recent growth of Corby is ascribed on p. 11 to geography and on p. 112 to the activities of Messrs. Stewart and Lloyd.

Air photographs and maps are for the most part innocent of scale and orientation; symbols are not well chosen, and the maps of agricultural distributions need dates. The bibliography, if intended for the guidance of young scholars, is in urgent need of re-arrangement. G.H.D.

Dorset. Eric Benfield. 13.7 × 21.9 cm. x + 232 pp. London: Robert Hale, Ltd. 1950. 15/-.

This book is exquisitely illustrated with 50 magnificent full-page photographs, well written and always interesting. The author seems to dislike seaside resorts, parsons, and a good deal about Thomas Hardy. He has written about some aspects of Dorset, notably Dorchester and Jeffrey's Assizes, Dorset writers, and the Dorsetshire Regiment, but only in the chapter on the Isle of Purbeck does the landscape and its people steal upon one with any reality. The book captures the atmosphere of Dorset but it does not give us the countryside, its villages, farms and life. The author is a Dorset man but his pre-occupation with history gives the impression that more than half of the book might well have been written in South Kensington. A sustained creative reconstruction of the life and occupation of Maiden Castle fills the last chapter. It follows closely Wheeler's unconvincing interpretation of the excavations of the great landmark. Everyone who reads this book will greatly enjoy it and be moved to visit Dorset and see for himself one of the unspoilt treasures still left amongst the counties of England. A.D.

Migration. N. E. Development Association—Northern Industrial Group. 14.1 × 21.4 cm. 22 pp. Newcastle-upon-Tyne. 1950.

The shadow of the bleak inter-war years still hangs heavily over North East England and will remain so long as its notoriously narrow industrial basis is unremedied. This realistic paper analyses the inescapable consequences in migration if the man-power requirements of the basic industries contract again without the provision of alternative employment. Neither the shipbuilding of Tyneside and Wearside, nor mining in the older western part of the coalfield, can be expected to maintain indefinitely their present level of employment. Although vigorous efforts are being made to attract new industries and this policy has the backing of the State by the designation of the region as a "Development Area," only an attitude of unjustified complacency can fail to recognise that the infusion of new life may fall short of what is needed. Migration, attendant upon unemployment will then become inevitable.

The paper examines the inter-war migration from the area, which amounted to nearly 350,000 persons, depleting the most depressed districts of the younger sections of their population and creating more or less derelict settlements. A table is presented which shows that of the migrants who left Durham between 1921 and 1931, three-quarters were under the age of 35, a fact which was bound to unbalance quite seriously the age-structure of many communities and aggravate the problem of their economic rehabilitation. Yet the volume of migration, as is well-known in the area, was in no degree commensurable with the seriousness of unemployment—labour proved to be anything but conspicuously mobile.

If depression of its basic industries should again affect the North East, setting up in its train a renewed flow of outward migration, the immediate cost, whether it falls on the individuals affected or is shouldered by the community, must be very high. Furthermore, any large-scale migration involves great waste of social capital in the depleted settlements. In short, the conclusion is reached that large-scale migration is to be contemplated only as a last desperate measure; but if it comes to that it is imperative that it should be a planned operation and not a mere drift. Only thus could the attendant evils be minimised and a disastrous social denudation of the area be avoided.

It is encouraging to see the issues faced so squarely and honestly and it may well be that such a realistic assessment of the situation will prove more powerful in stimulating effective official action than much conventional pleading for a larger share of State favour. A.E.S.

Northumberland. The County Books. H. L. Honeyman. xii + 288 pp. London: Robert Hale. 1949. 15/-.

This volume is one of the new series edited by Brian Vesey-Fitzgerald and is well produced and pleasant to read and handle.

The introduction makes it quite clear that it is one man's personal impressions and not a guide book nor a serious history of the county. It is not surprising,

therefore, that Northumberland's large and varied area is described rather unevenly and no one should hope to find a formal geography here.

The first half of the book deals with the history of the county and of this, two pages go to geological history. A fair amount of history comes into the second half, too, though it is concerned with place, people, trade and so on. Northumberland, however, has a long and exciting history, so that even this overweighing on the historical side leaves us with what is often only a list of events and a procession of people who are introduced and then disappear.

The author has a style of his own. His argument is sometimes hard to follow because his sentence structure is difficult and might occasionally be considered careless. His expressions of personal opinion on unexpected subjects, however, enliven the book. The chapters on the people are sympathetic and appreciative, and form one of the most enjoyable parts of the work. A smaller subject, indeed, might have made a more balanced book. One feels that he understands Newcastle and its people well, but the more distant parts of the county sometimes tend to remain vague and rather obscure.

Many of the photographs are good and well chosen to illustrate the region's many aspects. The few that disappoint are perhaps the inevitable result of the breadth of so many of Northumberland's famous views.

Northumberland is a book which the Northumbrian will read, criticising and enjoying alternately, and which others may find a delightful introduction to a varied and comparatively little-known county. M.F.

Ireland. T. W. Freeman. 14 × 22 cms. xv + 555 pp. London: Methuen. 1950. 32/6.

Mr. Freeman has produced a textbook for university students that will remain a standard work for many years. The work divides into two parts, roughly equal in length, the first dealing with the country as a whole, and the second treating it regionally.

In the first half of the book, after a short informative introduction, there follow chapters on structure and landforms, climate and weather, vegetation, historical geography, population, settlement and society, agriculture, and finally communications. With such a breadth it would be surprising not to find certain irregularities of emphasis and interpretation and it is gratifying to record that it is an accurate compilation of much diverse material from many hundreds of scattered sources; the principal references are listed at the end of each chapter. If the careful collection of facts from many separate specialist studies and the placing of them side by side with suitable linking phrases constitutes geography, then this book is in the best traditions. For those of us who seek for interpretation and synthesis, for guiding principles uniting and illuminating the diverse strands that make up an environment, the absence of any chapter drawing together all the nine sections of Part I is significant.

Taking the book at its own evaluation of the subject, there is much deserving of praise. Here for the first time are the essential facts on the geography of Ireland, fully set out, annotated and illustrated with several well-chosen photographs and many beautifully drawn maps. Fig. 3, *Major Landforms*, it is true, does seem a little old-fashioned in its non-genetic approach to landscape but the text shows that the essential geomorphological field work has not been done. Field work by the author covers many topics and frequently enlivens the text; his personal research gives an authoritative tone to the chapter on population. Less satisfactory is the section on settlement and society where the social traditions developed by a dispersed rural society, strongly conscious of kin, and working at a rudimentary technical level, are overlooked in a fragmented discussion of farm houses, towns, religion, etc.

In the field of economic geography the fact that the book was written in Dublin becomes clear to your reviewer (who was trained in Belfast). Acquaintance with statistical facts in the field does not extend to Northern Ireland. It must be admitted in fairness that "the rest of the country" covers four-fifths of the surface. It is, however, misleading to say that Northern Ireland (like Eire) uses its farm output, half on the farm and half on the home market (p. 198) unless it is clearly stated that the home market for N. Ireland includes Great Britain. So, too, Fig. 38 (p. 199) *Farming Types in Ireland*, is as correct as a general map of this sort can be for a country where each locality can show farms of many types, except for parts of Northern Ireland; for example, east Co. Down is shown as fattening and grazing country, while in fact it grows most of the little wheat and barley in the "North." More serious are the discrepancies in the treatment of industries; Eire, the least industrialised section is allotted 23 pages

while Northern Ireland gets six and the maps (Figs. 42-45) mark every factory in Eire and not a single one elsewhere. The tourist industry of Eire, important in the national budget, is surprisingly given only a passing mention in this chapter.

The second half of the book discusses 12 major regions whose distinguishing features are said to be based on physical features and types of farming; the regional boundaries, however, fit exactly into the old provincial boundaries of Connacht, Leinster, Munster and Ulster. Each region is further sub-divided so that this regional section, unmentioned in the long sub-title, involves the recognition of some 90 units. The technique of describing first the major units with identical headings (structure and landforms, land use, industries, population) followed by a shorter note on the same lines for each sub-region may be desirable in a textbook but it makes for much repetition. The same formula, almost the same sentences recur again and again. Even the excellent maps cannot save this second half from being wearisome.

Yet the immense labour of producing a pioneer work of this magnitude must earn the gratitude of geographers. Here are the topics that underlie the burning problems of Ireland and that spring from the soil of that island; their discussion is more careful and balanced than usual, a welcome feature in a world more accustomed to polemics and propaganda from Ireland than any appeal to the facts of geography. This book should lead to a greater understanding of Ireland as a country and as a part of the "British Isles" syllabus. Its good points outweigh its defects; it deserves a place in every geography library.

J.M.M.

The Islands of Ireland. T. H. Mason. 15.5 × 23 cm. viii + 135 pp. London: B. T. Batsford, Ltd. 1950 (3rd Edition). 16/-.

Mr. Mason's book was originally reviewed in *Geography*, 1937, p. 222, on its first appearance: it has remained a popular work for more than twelve years. The reviewer of the first edition drew attention to the splendid series of 160 photographs, the acute observation of both the people and their crafts, and also of the wild life, both on land and on sea. These merits, and a chatty style, have enabled the book to survive, even at an increased price; and no doubt many more readers will enjoy Mr. Mason's guidance to islands difficult of access on the Atlantic fringe of Europe.

T.W.F.

Europe: A Regional Geography. (Fourth Edition). M. R. Shackleton. 14 × 22 cms. xvi + 525 pp. London: Longmans, Green & Co. 1950. 21/-.

The publication of the first post-war edition of this book and the fourth edition since it first appeared in 1934 must receive a welcome marred by regret. It is a matter for gratification that the revision of this work, which has been the standard introductory English text on European geography for sixteen years, was completed by the author, but there can only be disappointment that she did not live to undertake the further revision that will be necessary when the present flux has given way to conditions of greater stability.

The principal changes in this edition are the expansion of the section on Eastern Europe from two to seven chapters, and complete revision of the chapters on "Vegetation and Soils," "Race, Nationality and Language," Italy, Iberia and Germany. The whole book has been brought up-to-date in the light of post-1939 literature and available statistics, and new references have been added. It is, however, worthy of note that the original regional division based on physical factors has survived intact and remains as before a reliable sea-anchor in the troubled waters of European economic geography. Whatever political changes may be in store students will undoubtedly continue to find this book indispensable as an introduction to the geography of Europe for many years to come.

A.J.H.

The British Isles. A. Demangeon. Translated and edited by E. D. Laborde. 2nd edition. 13 × 21.5 cm. xviii + 434 pp. London: William Heinemann, Ltd. 1949. 21/-.

The first edition of this book was published in 1940 and reviewed on p. 92 of the 1941 volume of *Geography*. The praise then given is still deserved. The book has been revised and the economic section brought up-to-date. The book had many more minor errors than were indicated in the review, for dwelling on those would have thrown the criticism out of balance. By far the greater number of these faults have been corrected, but not all. Notwithstanding the real merits of

the book, one could understand a university lecturer hesitating to recommend the book to his students, especially the less critical ones. Such hesitation is no longer needed even though the faults have not been entirely eliminated.

Attention may be drawn to the following. On p. 279 it is said that "At the end of the 12th century the busiest fair in England was held at Stourbridge." In fact the fair was held on Stourbridge Common in Cambridgeshire for a month in late summer or autumn. A small point, but why not be exact?

The changes in agriculture during the war years could have been more adequately emphasised.

It is strange that a disciple of Vidal de la Blache should make no reference to the existence of the Welsh language and its geographical implications. It is perhaps not so strange that one who had not lived in Wales should not have noted the difficulty of finding a capital for Wales, a difficulty due to the physical build of the country.

But when the worst has been said, this book is a most valuable one and it is, moreover, an excellent example of the work of the French School of Geography.

T.C.W.

Geographical Regions of France. E. De Martonne. 12.7 × 19 cm. xi + 224 pp. London: William Heinemann, Ltd. 1948. 7/6.

We welcome the re-issue of H. C. Brentnall's translation of de Martonne's *Les Régions géographiques de la France*, first published in 1933. The original text is now nearly 30 years old, but the physical relations which are the main theme of the book do not seriously change, and the statistics are revised in an Explanatory Index. The translation is admirable, preserving both the sense and the clarity of the original. If students do not read French they could not do better than read Brentnall. Some of the maps, one feels, should have been re-drawn, for example the caterpillar-swarm representing the Pyrenees on page 197, of which the publishers rightly say that it has "no counterpart in the French edition."

E.E.E.

West of the Rockies. E. Young. 14 × 21.5 cm. xii + 236 pp. London: Edward Stanford, Ltd. 1949. 21/-.

This very valuable and lively account of travels in the western states of the U.S.A. could have been produced only by a highly trained observer who combines a zestful approach with a real facility for telling an informed story attractively. The journey described was made mostly by bus or on foot and fell between the borders of Mexico in the south and of Canada in the north and between the Rocky Mountains and the Pacific Ocean. It is good to be able to recommend a book which can give so much pleasure as travel literature as a 'must,' because of its solid geographical worth, for libraries and individuals with any interests in the U.S.A.

N.P.

Atlas de Cuba. Gerardo Canet with the collaboration of Erwin Raisz. 32 × 25.5 cm. 63 pp. Harvard University Press (London: Geoffrey Cumberlege). 1949. 28/-.

This booklet is less an atlas than an outline of Cuban history and climate, its physical, biological, demographic and economic conditions, illustrated by maps, cartograms, and diagrams. The text is in Spanish with English summaries for most sections. Visual representation of statistics can do much to bring facts and problems within popular understanding but the method is here used to surfeit. An object has only to be mentioned and it is drawn, and the result has overloaded the pages with sketches that are poor in design and purpose. The technical quality of the colour printing is poorer than should be expected and the lack of registration in the diagrams and scenic illustrations produces an unattractive unfocused effect. The only really valuable part of this highly-priced atlas is the large folding map of Cuba at the end of the volume. This is a notable attempt to depict landscapes by techniques and colours that convey something of the whole character of the region and avoid the well-known deficiencies of conventional methods of showing relief on small scale maps.

N.P.

History of the Buccaneers of America. J. Burney. Introduction by Michael Barnes. 14 × 22 cm. xvi + 328 pp. London: George Allen & Unwin, Ltd. 1949 (Reprint of the 1816 Edition). 18/-.

James Burney (1750-1821), brother of Madame d'Arblay, known to Dr. Johnson and an intimate friend of Charles Lamb, saw a good deal of naval service

between 1764 and 1786, becoming a rear-admiral on the retired list before he died. His real interests were in letters and in cards; he wrote on the game of whist and, as a more serious occupation, traced the naval history of the Pacific in five volumes, *A Chronological history of the discoveries in the South Sea or Pacific Ocean*, completed in 1817. He had been elected a Fellow of the Royal Society and his work long remained the standard account of the subject. Mr. Malcolm Barnes arranged for this reprint of the first half of the fourth volume in 1912 and this second impression is now available.

The print is clear and good and the narrative reads as attractively as ever. There are, unfortunately, no notes indicative of the results of later research, nor is there an index, but the matter is always readable. Leaving aside the references to Columbus, now entirely superseded, Burney deals mainly with the years 1670-1697, when Dampier circumnavigated the globe and when it was possible to attack Spanish ports and settlements with impunity, whether the two governments were formally at war or at peace. The account of the landings on the Mosquito coast are not entirely unimportant to-day when British rights in Honduras are challenged and it is interesting to note that the Spanish conquerors were far from popular with the inhabitants here, or in the isthmus of Panama. There is plenty of fighting in these pages and some gross cruelty: men who went to the South Seas for loot in the seventeenth century could hardly be gentle in their methods. They were frequently superstitious and also rash gamblers; ransoms and precious metals won after great hardships would readily be lost at the dice table. The stories of Dampier, Davies, Swan and Townley show how active exploration and discovery were in the days of James II (when a report reached Jamaica that all the English at home had become Roman Catholics). The buccaneer of this age was not unlike the privateer of the next; he was not a pirate, for he held some kind of a commission and had some vague rights at international law, but after 1697 he disappears.

In this collection of stories—for it is more this than a scientific history—we learn a good deal about the rivalry of Spanish, French and English in the West Indies, about the animals, birds and plants of the American mainland and of the islands in the Pacific and about conditions of life aboard ship in these irregular days. It all well repays perusal and this reprint is timely and welcome.

G.R.P.

The History and Social Influence of the Potato. Redcliffe N. Salaman. 23 × 16½ cm. xxiv + 685 pp. Cambridge: The University Press, 1949. 50/-.

A handsomely produced work of this scientific and literary quality is an uncommon event. What above all distinguishes it is the way the material and technique of a number of separate sciences and 'arts' have been combined to throw light on a neglected aspect of the culture of the western world. Dr. Salaman, having been attracted quite casually at first to the study of the potato, found his subject matter ever growing in scale and complexity and found himself not averse from the bold adventure of invading new fields of specialist study. In pursuit of his quarry he had perforce to concern himself with botany and geography, with archaeology and history, with economics and statistics, and much else. The librarian, faced by the problem of classifying his work, would doubtless fall back on Sociology, although he would hesitate and perhaps choose Botany. The fact is that this book demonstrates the shortcomings and absurdities of our arbitrary, if necessary, subdivision of knowledge, and demonstrates the validity of the view that science often advances furthest at the borderlands of distinct disciplines. Certainly the student and teacher of geography will find plenty of matter and stimulus within Dr. Salaman's book. If one general criticism arises, it is this, namely the risk of exaggerating the importance of the potato in its effects on social and economic history. Obviously this work underlines the need for many such kindred studies—for example, of wheat and rice, of tobacco and distilled spirits.

The book ranges widely in space—from the homeland of the potato (how many varieties there are!) in South America, to Europe, and especially the British Isles, where its impact was so greatly felt. Ireland, Scotland and Wales receive separate and close study, so also do St. Helena, Tristan da Cunha and Jersey. Historical problems, too, some of them intricate though not baffling, provide material of other chapters: whence came the potato to the Andean Highlands; its relation to the remarkable Incan civilization; its introduction into Europe. One of the most fascinating sections of this book concerns the origins of the potato

in South America, much use being here made of archaeological evidence. Of outstanding interest also are the place of the potato in Irish social history—the famines and emigration of the last century, and in the modern history of capitalism, which found in the potato an excellent and cheap food for wage-earners. *The History and Social Influence of the Potato* is abundantly illustrated: maps, reproductions of woodcuts, engravings and manuscripts, drawings, and photographs, of numerous archaeological finds, chiefly pots and figures in which the form of the potato and its tubers are reproduced, and of agricultural implements. There is a full bibliography.

W.G.E.

Our Wonderful World. Book II—Workers of Our Islands. M. E. Kirtley. 13 × 18.5 cm. 112 pp. London: Frederick Warne. 1949, 2/6.

This small book contains eleven chapters which are essentially descriptions of personal visits to factories, mines and farms. The activities which are discussed range over shipbuilding and fisheries, farming and making bread and confectionery, coal mining and the manufacture of iron and steel, pottery, textiles, boots and shoes, paper making, and plastics with lenses. Each chapter has a short appendix with suggestions for further work. There are several suitable plates in the text. A map, inserted in the front cover, seems somewhat overcrowded in view of the standard of the book which is presumably that of primary schools.

N. K. H.

REVIEWS OF FILM-STRIPS

BY THE VISUAL AIDS COMMITTEE

Australia—Strip 2: Eastern Australia.

Educational Productions, Ltd.

Teachers' notes available.

Description: This film-strip, which gives a broad survey of the area lying between the watershed of the Eastern Highlands and the coast of Queensland and New South Wales, is divided into four sections. Section I, "Position and Physical" (14 frames) has maps on 4 frames, one climatic chart, and views showing surface features, indications of climatic conditions, and types of forest in the Eastern Highlands. Section II, "Agriculture" (9 frames) contains one map, and shows cattle-rearing and sub-tropical and tropical crops and fruits. Section III, "Mining and Industry" (7 frames) has a map of the Sydney district, including the greater part of the coalfield, and views of coal mining and of several industries, mostly factory interiors. Section IV, "Communications and Towns" (9 frames) contains three maps, the views being of the chief towns.

Assessment: The treatment is systematic; the maps form the basis of study, while the views aim at bringing the maps to life. To a great extent they succeed, and the strip could serve as an introduction to the region for intelligent pupils of 14 years and over; it would be equally useful for revision purposes. The maps are clear and generally simple, though the second one showing relief is probably superfluous, and that combining winter and summer isotherms does not readily convey its meaning. Most of the pictures are good and typical, but a few are open to criticism on grounds of obscurity, of lack of indication of scale, or of excessive contrast. The notes, while directing attention to most of the significant features in the views and maps, contain in addition much good textbook material. They greatly enhance the value of the strip.

African Life in the Copper Belt of N. Rhodesia—Part 1: African Village.

Gaumont British Instructional Film Strip.

Teachers' notes available.

Description: This strip illustrates in 20 pictures and 2 maps the mode of life, daily work and customs of the natives of a village in Northern Rhodesia by pictures taken specially for this purpose.

Assessment: Though specially designed to create for children of 9-12 an accurate impression of living and working in Central Africa, this strip is by no means restricted to a junior age range. A nice balance between human activity and physical background makes it essentially geographical rather than sociological

or anthropological. Many of the frames contain more than meets the eye at first sight, which the skilful teacher may use to stimulate much thought and study. Largely because it is an excellent sample study the strip is attractive, interesting and educational; it is also typical of large areas of Central Africa. It may be highly recommended for use in all schools. The teaching notes supply mainly additional sociological details, and no attempt is made to be geographically selective. The photography is excellent.

African Life in the Copper Belt of N. Rhodesia—Part 2 : David African Miner and his family.

Gaumont British Instructional Film Strip.

Teachers' notes available.

Description : The 29 pictures and 3 maps of this strip illustrate the lives of a family who have moved from their village in the bush to a mining town. Three general views give some idea of the setting of the mining town; the work in the mine, the home life of the miner, and the education and social activities of his family are then illustrated in some detail.

Assessment : Apart from the general scenes the photography is of high quality, and as the pictures were specially taken for the strip the story is full and complete. It is mainly intended for children from 9–12 years and will undoubtedly rouse their interest and curiosity, partly because it deals with the life story of a real named person in a particular area. It is probably intended that all 33 frames should be shown in one lesson, for the pictures tell a complete story as a whole. Moreover they are intended to provide a pictorial experience for the children rather than an intellectual stimulus to thought. The story is a sociological story, rather than a geographical one. The implications are sociological too. In general, however, the film is straightforwardly informational and few inferences or conclusions are apparent. It would be difficult to ask thinking questions about the pictures, but few would doubt that an important and worthwhile impression of one form of life in Africa could be gained by seeing this strip.

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